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PHARMACEUTICAL EDUCATION

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Number 1

CONTENTS

The New Front— <i>Henry Baldwin Ward</i>	5-14
An Evaluation of Pharmacy Journals— <i>Ralph E. Ellsworth</i>	14-19
An Old Timer Looks at the Pharmacopoeia— <i>Wortley F. Rudd</i>	20-24
Pharmacy as an Agency of Public Education— <i>Walter D. Cocking</i>	24-28
Modern Educational Methods and Trends— <i>Paul R. Morrow</i>	28-31
The Responsibility of Colleges of Pharmacy to Research— <i>L. Wait Rising</i>	32-34
The Modernization of Pharmacy Laws— <i>Robert L. Swain</i>	34-41
The Functions of Teachers of Pharmacy in Relation to the Teach- ing Profession— <i>Robert C. Wilson</i>	41-44
Historical Notes on Chemistry at the School of Pharmacy, Uni- versity of Maryland— <i>E. Gaston Vandenbosche</i>	44-49
The First Courses in Pharmacy— <i>Charles O. Lee</i>	49-63
The Significance of Honor Societies— <i>Zada M. Cooper</i>	64-68
What Are the Fraternities Doing?—A Reply— <i>Howard L. Reed</i>	68-72
The Function of the Teacher in the Training of Students for Manufacturing and Retail Pharmacy— <i>Marvin J. Andrews</i>	72-75
Professional Relations— <i>Hugh C. Muldoon</i>	76-77
Relationship with Physicians— <i>Marvin J. Andrews</i>	77-80
Relationship with Hospitals and Nurses— <i>Louis C. Zopf</i>	80-84
Relations with Dentists— <i>George C. Shicks</i>	84-87
Relations with the Public and with Other Pharmacists— <i>Clark T.</i> <i>Eidsmoe</i>	88-94
Dispensing Pharmacy in American Universities— <i>L. Wait Rising</i>	94-123
Editorials.....	124-130
The Editor's Page.....	131-135
Gleanings from the Editor's Mail.....	136-138
A Pharmaceutical Opportunity in China.....	138
All in the Family.....	138
Notes and News.....	139-143
Pharmaceutical Education on the March.....	144-169
Miscellaneous Items of Interest.....	170-186
New Books.....	187-188

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The New Front¹

HENRY BALDWIN WARD

The University of Illinois

During recent years the attention of the world has been vividly directed to wars and rumors of wars. Stories of fighting, destruction of resources and terrible loss of life have filled the columns of our papers. They tell also of violent threats, ultimatums, immense appropriations for armament and unprecedented expenditures not only in money but in human labor diverted to the production and distribution of purely destructive materials and machinery. These matters have commanded the primary attention of legislative bodies and administrative groups throughout almost all the nations of the world. It would be fair to say that today this is apparently the chief interest of mankind. Some men are inclined to regard war as natural and inevitable. I do not underestimate the seriousness of the impending dangers or minimize the need of resisting, to the limit, destructive activities, but I cannot agree with that view. Neither can war be ranked biologically as the most influential factor in the development of the human race.

The great struggle throughout all human history has been *the contest of man with nature*. This has manifested itself in two closely related and yet somewhat distinct aspects: first, the maintenance of existence and, second, the improvement of existing conditions for the individual and later for the group. With primitive man the struggle at the start was primarily to secure food and protection from the unfavorable factors in his environment. Something new was happening all the time and

1. An address delivered at the commencement of the Schools of Medicine, Dentistry and Pharmacy of the University of Illinois at Chicago, June 9, 1939. Dr. Ward, a distinguished parasitologist, research worker, conservationist, and author, was for many years Chairman of the Department of Zoology in the University of Nebraska. He organized and was the first dean of the Medical School of that institution. Later he served as head of the Department of Zoology of the University of Illinois for a long period and upon reaching the age of retirement was given the emeritus status. He then became Permanent Secretary of the American Association for the Advancement of Science. It was through his efforts that the Section on the Medical Sciences was brought to its present efficiency and the Pharmacy Subsection was established. This address is printed in this Journal at the request of the Editor.

man was unquestionably dominated by fear—fear of the unknown, fear of his lack of power to meet that already learned of the complex factors in his environment. Fear drove him to think, to guard himself against the destructive forces that hemmed him in and fear dominated all his acts. To save himself he shunned the attacks of wild beasts and strove to outwit them. He learned how to find shelters, to construct tools and weapons of defense. Then one day some man thought out the method of enriching himself by appropriating the accumulated food or other wealth which his neighbor had accumulated. And out of that has grown warfare with all its destructive and inhuman manifestations today. The struggle with nature came first, and warfare grew out of it much later.

It is not my purpose here to follow in detail the development of the great struggle with nature which man has waged through all the unmeasured ages of the past, but rather to consider a single aspect of the situation which though apparently overshadowed today, truly dominates the scene now as it did of old. We recognize the forces of nature as more far-reaching than human agencies. An earthquake shatters a city, an island, destroys man's handiwork and the accumulated resources of a region; storm and flood break over human barriers, wipe out the improvements of centuries and reduce the population of a valley to dependence on the support and protection of more favored regions. Less conspicuous but more intimate and widely distributed is the economic struggle so much accentuated by the writers of the present day.

These and other factors of the ever present and never ending contest for land, for power, for wealth are conspicuous and picturesque. They seem to control and subordinate other factors to themselves. Yet there is still another influence so widespread, so insidious, so gradual and universal that it is even assigned a secondary position as a necessary part of life which may be left out of consideration because of its inevitable character. I refer here to the warfare with disease and death.

Primitive man ran away from disease, deserting property, friends, relatives, and home; he sought to free himself from its menace in a new location. Under conditions then existing of scanty population, vast areas of unoccupied land, abundance of uncontaminated territory, that method often sufficed; and though long recognized to be an imperfect and inadequate remedy even under such exceptional conditions, it has not

entirely disappeared. When the hunter met death in some unequal struggle with wild beasts or in flood or storm, he learned to shun the dangers. But, before "the pestilence that walketh in darkness and the destruction that wasteth at noon-day" an overpowering fear of the unknown has grasped man throughout all history.

There are few I imagine who appreciate how long and how tenaciously that first ancient tendency to run away from disease persisted. One does not need to go back to savage conditions or to ancient civilizations to find examples of the practice. Daniel Defoe, in the *Journal of the Plague in London*, dwells on the superstitious fears of the people. He even put it into verse:

"So hypochondriac fancies represent
Ships, armies, battles in the firmament."

He told how quacks preyed on the fears of the crowd, how heaps of the dead lay unburied in the streets when the population of London fled into all parts of England to escape the curse that had fallen on the city.

But there is another side to the story which, weak as it appears, forecasts a better future for the world. Even in the earliest times of human history the man of vision was not content to run away from disease. He sought to aid the injured, to relieve the suffering, first among his own and then in the clan and the tribe. This was a part of his religion and the motive gave origin to a special class, trained for the work, though poorly, and dominated too largely by fear. Despite its historic importance, the history of that long period of priestly medicine cannot be reviewed here. It is illustrated at its pinnacle by the famous Papyrus Ebers, the oldest known medical work, found in an Egyptian tomb and "of a date so remote as almost to place Hippocrates within the ranks of modern physicians." The knowledge of that day was too superficial and scanty to nourish the growth of a truly strong and effective army of defense against the attacks of disease.

Brief mention of conditions as they were at a relatively recent date in human history will show clearly how little the old world had which could aid in that struggle.

Hardly more than 300 years ago the only surgeons were the barbers whose pitiful ignorance of anatomy set narrow limits to the success of their practices. It was left to students of the new learning, to scientists, to work out, laboriously,

correct details of the structure and function of the human body; and to still others, through the invention and use of the microscope, to go far beyond the limits of human vision. Thus scientific discovery invention and experiment have made possible the marvelous work of anatomists, bacteriologists, histologists, pathologists and surgeons, working in intimate cooperation today.

Firm foundations were laid for new fields of applied science in branches of surgery, dentistry, experimental and comparative medicine which are now being so assiduously and successfully developed.

Three hundred years ago the dispenser of drugs was a wandering collector of herbs who had supplanted the medicine men of savage tribes. The ancient lore of the savage had been gained by chance and secretly handed down from generation to generation in the magic circle. After countless centuries this method had yielded only a wild mixture of truth and mysticism that served so miserably and inadequately the needs of human society.

Physics, chemistry, physiology and biology are making scientific procedure possible today in internal medicine and pharmacology. The old empirical methods could not separate truth from falsehood and gain knowledge rapidly enough to win battles against disease. The old front was beaten back and again and again fled in defeat.

The problem of disease surpasses in magnitude the normal estimate of the average man. Disease has destroyed in warfare in the past more lives than have been sacrificed directly by the weapons and machines of the contending forces. Smallpox in Europe three centuries ago claimed more victims than all the wars of that turbulent century. Even in the last century the plague in India cost more lives than the bitter struggles of that area involved in almost constant warfare between principalities and states. Such examples might be multiplied.

The last hundred years has seen remarkable progress made in the conquest of disease. This progress can be definitely ascribed to a few discoveries of fundamental significance. The new era opened with the demonstration by Pasteur that the bacteria, lowly plant organisms, were true causes of certain long recognized maladies. As the flood of new discoveries rose higher and higher, mysticism was swept away and the ancient fear dispelled.

Here was something real to fight when causes could be seen, handled, studied, recognized, subjected to experiment. One could learn where they came from, how they grew, what stopped them; and a whole science, bacteriology, developed rapidly around these germs. But this did not serve to explain all diseases, and half a century after Pasteur, a new type of organism came into prominence and it was shown that many unexplained diseases were caused by minute animal parasites. In a third group, the so-called virus diseases which are due to ultra-microscopic agents, there have been very recent studies that have indicated something of the probably character of the virus and thus opened the way for their control.

Not only have the causal agents of most diseases been definitely determined, but in many cases the means by which these diseases have been transported from region to region and transmitted from sick to well have been clearly demonstrated. With this evidence well in hand the new field of Preventive Medicine has achieved successes in its work on disease control. Thus a well-armed and powerful army was brought into the field to form the center of the New Front.

The remarkable advances in biochemistry have given us, in the last few years, compounds that achieve unexpected results in controlling abnormal processes, replacing lost functions, and correcting dangerous disturbances in the body. Intensive scientific investigations have given the pharmacist means of aiding powerfully in the campaign for the control and suppression of disease. New refinements in apparatus and technic have aided every phase of medical and surgical treatment to an extent unappreciated by the one who has not compared side by side the armamentarium of dentists and surgeons today with that of a hundred years ago.

Under these and other new and favorable conditions, the warfare of science against disease has been waged vigorously and persistently despite many obstacles. Its success has been shown clearly in the increase in the average life span of our population which has been doubled in the last 50 or 75 years. Success appears also in the diminishing records of many diseases and in the infrequency of maladies regarded as commonplace by writers of half a century ago—*Science is winning the fight*. Man lives longer, is healthier and happier today than ever before in the world's history. But the end of the struggle is not yet. Whenever ignorance or prejudice weakens

or limits the power of the public health army and its agencies, then society has to pay the penalty. The subject is exceedingly complex and brief instances will illustrate striking fluctuations in the tide of disease.

The story of leprosy probably illustrates the decline of a serious human disease better than anything else on record. In the late middle ages this disease was rampant in Europe and over 2,000 leper hospitals are recorded in an age when hospitals of any sort were a rarity. Today the disease is a medical curiosity in western nations and seems to be steadily dying out everywhere. The change has been brought about by factors which we do not recognize. Students of human disease are eager to know just what caused the great decline and the public health experts of a prominent life insurance company point out with good reason that the answer to this question is likely to be of great value in handling the problems of other diseases.

Could we but ascertain the influences that led to the gradual and almost total disappearance of leprosy, it might be easily possible to hasten the elimination of tuberculosis. That disease has yielded somewhat, to be sure, to the vigorous campaign waged against it by modern medical forces but it still remains a prominent and active menace to public health.

In certain unexpected ways the findings of science have been associated also with the coming of new difficulties. It would be unfair to fail to recognize the fact and to note one such relation to the subject under discussion. The marvelous development of transportation which brings all peoples and all regions continuously and constantly more intimately into contact with each other has resulted not only in extending our knowledge of new regions and new products, in associating distant people and making man conscious of life and society as a whole, but it has also resulted in the dispersion of new and destructive diseases. The barriers of nature are surmounted in a day—in an hour—which formerly stood as insurmountable obstacles to the movements both of peoples and of the diseases which they knew. Plagues of distant lands break out in new regions without warning. Some conspicuous instances may be noted.

The bubonic plague which has crossed the Pacific, infected not merely man but especially the rodent population of our western slope and has spread through members of that group

of small burrowing animals, common everywhere, until it is now well established a thousand miles from its original starting point. Alike unheralded, the formerly unknown and serious parrot disease which burst upon the nation with the force of an explosion and led to numerous deaths and rigid rules for breeding and distribution of parrots and love-birds. One may add to these yellow fever with its sudden reappearance in Brazil after it had been supposedly banished from the western hemisphere and existed only in a limited region of the African hinterland. These and many other, including some apparently entirely new diseases, have in recent years forced themselves on the attention of this western world of ours, suddenly and with a force that compelled the organization of prompt and thorough methods for their suppression.

Such illustrations demonstrate forcibly that to regard the fight won is premature. Loss of life from preventable disease is still great and unfortunately constant in highly civilized nations. Every new invention brings with it some new danger to human life. Man works out plans for commerce, amusement, and freedom from labor more rapidly than the average mind gains habits of adjustment to the changes involved. Finally, the public is only just coming to realize that human diseases are not a closed circle involving man alone but spread out to involve in various ways other forms of life and that, on the other hand, diseases which affect other life in his environment may creep into his charmed circle with consequences of unexpected seriousness. Science has long recognized that trivial maladies in one race may be a menace when transmitted to the other races. This same relation exists between man and widely separated types of life.

One instance must serve to show that for man's protection much work has only just begun. Who can foresee the ultimate value of the series of vitamins just being discovered, studied and utilized. One may confidently predict that the utilization of all such materials will furnish uncalculated aid in the campaign for health and will equally and surely involve new dangers in untrained or careless hands. These two antagonistic results confront man at every turn of the road. New skills involve new dangers and the indiscriminate use of valuable remedies has cost precious human lives.

Despite these and many other difficulties, no one who faces the record of the years without prejudice can fail to

recognize the great victories that have been won. How have these results been achieved?

During this brief but brilliant period of the last century the effort has been made to dig constantly deeper, to find the exact causes of trouble, to search after origins and devise effective means of control. The developments of today have demanded thorough work, restrained optimism, broad vision of possibilities and careful testing of results. Who can doubt that they have been of incalculable advantage to society and all its members. Continued operation promises to be even more effective in casting out the imperfections of knowledge, in destroying arbitrary judgment and correcting erroneous conclusions. The progress is slow but it is along the right road.

To the work done in the past by independent investigators is being added even greater results through cooperative research in which problems are attacked jointly from various angles. Today biology and chemistry and physics and medicine and a regiment of other sub-divisions of science are together fighting battles every day and hour for ameliorating human suffering, curing human diseases, protecting society everywhere and seeking to bring health, happiness and security to the whole world.

In all these cases of most recent date, note carefully that scientific laboratories and investigators in what is often called pure science have cooperated promptly, effectively and continuously with students of medicine to find the origin, trace the course and attain the successful limitation and ultimate defeat of menacing diseases. That has not been done without devotion of the individual worker to the extent even of the extreme sacrifice of life itself. Reed, Carroll, Lazear and Agramonte solved the problem of the control of yellow fever by establishing beyond question the agency through which its dispersal was possible; but three of them laid down their lives in the voluntary experiment of submitting themselves to the bite of infected mosquitoes. Ricketts solved the problem of typhus with its age-long sacrifice of human life but surrendered his own life in the conflict.

Within the last year two outstanding scientific investigators—McKinley, bacteriologist, medical teacher and investigator, and Meyer, authority on plant diseases—seeking to explore the upper air and determine the influence of constant

currents in disseminating disease germs, found an unmarked grave when the airship which carried them sank into oblivion somewhere in the Pacific. But one might name a hundred others who in work of similar significance also sacrificed their lives to win the knowledge which was to arm the medical profession in its fight with disease.

Someone has proposed that the world has already too much science and that research should be given a holiday. We may stop for a moment to glance at the situation and acknowledge no one can question the advantages which, by the achievements of modern science, have been put in the hands of those ruled by greed and crime. But let us look at both sides of the story.

My beloved old Greek professor at college mourned when I turned from classics to chemistry and told me of the crime to society which he felt must be laid at the door of chemistry in the discovery of dynamite. Crime had certainly been thus advantaged but could modern society do without powerful explosives, could we build tunnels and dams, win products of mines and quarries, develop magnificent road systems and carry on numerous other types of construction without the added power which explosives have given to man in the past fifty years?

After all, more careful consideration shows the trouble is not rightly placed. The true responsibility rests on man, not on science. Science gives information only; we need not less but more. Man uses knowledge thus gained for his own purposes. It lies in his power to choose how it shall be employed—for good or for evil.

Members of the Graduating Class!

To you as newly commissioned officers in the army fighting the greatest of all human battles, that for health and strength and happiness, Science has given today better weapons and more powerful ammunition than your predecessors ever have had. The future rests in your hands. If you use the new power Science has given you for selfish ends you do violence to the spirit of Science which is Service. You are given these discoveries to use for the common good and the welfare of those who come to you for help. The famous ancient oath in medicine is as binding today as in Greek times when Hippocrates administered it to his students. Through all these cen-

turies his followers who have practiced the healing art have in high degree been true to their charge. To be sure there were quacks then; but despite quacks yesterday, today and tomorrow, the world has trusted the doctor and will trust you. The New Front has given you, each one, new power but it has no new principles to give you. It can only point to those ideals which animated the man of old who had won the confidence of their times and the approval of history. Literature paints the picture of the everyday worker in the stories of Ian MacLaren, and of the Horse and Buggy Doctor. Not only leaders but the men in the ranks, in humble walks of life, everywhere, have fought the good fight, they have kept the faith. In the same spirit it is yours to Carry On.

An Evaluation of Pharmacy Journals¹

RALPH E. ELLSWORTH

Director of Libraries, University of Colorado

The problem of deciding which journals should be available for students and faculty members in a professional school is always a difficult one when the budget is limited, because the literature of all professional schools is composite in nature. This means that the reader will invariably work his way back to the parent subject literature out of which his profession grew and from which it still draws sustenance. This means that, under our present system of departmental libraries, the pharmacy professor and student must inevitably run from the pharmacy library to those of chemistry, biology and medicine, unless his university possesses enough wealth to afford duplication—which few do.

The present study represents an attempt to answer the above question by asking professors of pharmacy to evaluate journal titles in terms of a numerical scale. Thus, a list of journals was sent to some 85 professors of pharmacy listed in the official catalogs of the Universities of Columbia, Maryland, Michigan, California, Iowa, Illinois, Wisconsin and Nebraska. This list was made from the *Union List of Serials* and Ulrich's

¹The author made this study as a part of the program of developing the Pharmacy Library collection at the University of Colorado. It is published in this Journal at the request of the Editor.

Periodicals Directory, 1938, and contained 60 titles. The professors were asked to assign a numerical evaluation to each title. The following scale was used: 5 for an evaluation of "absolutely fundamental" and 1 for an evaluation of "relatively worthless." The participants were asked to add additional titles not on the list and to evaluate them also.

Some 60 replies were received and tabulated on the following basis: All the scores for each title were added and the total divided by the number of replies. This "average evaluation" was then used in a new list, composed of the original list plus all the suggestions made. This second list was sent to all who replied to the first one. Thirty-eight replies were received and retabulated on the same basis as the first. Only the final evaluations were used in the final scoring.

How valid is this list? Professors of pharmacy and librarians of pharmacy colleges should know pharmacy literature better than any one else. Assuming that they do, can we assume that they were sufficiently interested in this study to make careful evaluations, and that the numerical ratings mean anything? The fact that most replies were accompanied by vigorous and detailed letters, plus the fact that in a few cases the entire faculty of the college got together and made a composite judgment, indicates that the professors were sufficiently interested in the study to make careful judgments. In a few cases, the professors obviously misunderstood the rating scale. Their replies were not used.

How reliable is the list? The Colleges of Pharmacy selected are well distributed geographically and by type, although the commercial "cram" schools are not represented. Care was taken to include professors of all ranks and subjects within each school. Thus, professors of biology, chemistry and medicine are all represented.

The following list is not intended to be exhaustive, especially in the field of state, regional, and trade journals, nor are all of the journals still being published. It is arranged according to rank order, based on the average rank of the contributors.

TITLE	SCORE
American Pharmaceutical Association Journal.....	5.00
National Formulary Committee Bulletin.....	4.92
American Medical Association Journal.....	4.90
Chemical Abstracts.....	4.86
American Journal of Pharmacy.....	4.82

Pharmaceutical Journal	4.79
Quarterly Journal of Pharmacy and Pharmacology.....	4.78
American Journal of Pharmaceutical Education.....	4.75
American Professional Pharmacist.....	4.73
Chemist and Druggist.....	4.71
Biological Abstracts	4.65
Deutsche Chemische Gesellschaft. Berichte.....	4.63
American Chemical Society Journal.....	4.57
Chemical Society of London Journal.....	4.57
Association of Official Agricultural Chemists Journal.....	4.53
Journal of Laboratory and Clinical Medicine.....	4.50
Squibb Abstract Bulletin.....	4.50
British Chemical Abstracts.....	4.47
Journal of Bacteriology.....	4.46
Journal of Pharmacology and Experimental Therapeutics....	4.42
Archiv der pharmazie und Berichte der Deutschen Pharma- zeutischen gesellschaft.....	4.40
Merck's Report.....	4.40
Analyst (London).....	4.39
Industrial and Engineering Chemistry Journal.....	4.39
Journal of Biological Chemistry.....	4.37
Journal of Chemical Education.....	4.34
Society of Chemical Industry Journal (London)	4.34
Justus Liebig's annalen der chemie.....	4.31
Société Chimique de France Bulletin.....	4.31
Journal de pharmacie et de chimie.....	4.25
Pharmaceutical archives	4.23
Journal of Agricultural Research.....	4.15
Berichte uber die gesamte physiologie und experimentelle pharmakologie	4.13
Chemisches zentralblatt	4.13
Journal of Physiology (London)	4.13
American Journal of Physiology.....	4.11
American Association of Colleges of Pharmacy Proceedings..	4.09
Naunyn-Schmiedeberg's Archiv fur experimentelle path- ologie and pharmakologie. Leipzig.....	4.06
American Journal of Public Health.....	4.05
Pharmazeutische zeitung.....	4.03
Botanical Gazette	4.02
Journal of Infectious Diseases.....	3.98
National Association of Boards of Pharmacy Proceedings....	3.91
Science	3.89
Biochemical Journal (Cambridge).....	3.86
National Association of Boards of Pharmacy Educational Bulletin	3.84
Scientific Monthly.....	3.81
Journal of Organic Chemistry.....	3.78
Perfumery and Essential Oil Record (London).....	3.78
United States. Bureau of Standards Journal of Research....	3.76
Oil, Paint and Drug Reporter.....	3.75
American Perfumer.....	3.71

Canadian Pharmaceutical Journal.....	3.71
Proprietary Drugs.....	3.70
American Druggist.....	3.68
American Journal of Botany.....	3.68
American Conference on Pharmaceutical Faculties Proceedings	3.66
Pharmazeutische zentralhalle fur Deutschland.....	3.66
Druggists' Circular and Chemical Gazette.....	3.62
Pharmaceutical Era.....	3.61
Journal de pharmacie (Brussels).....	3.58
Manufacturing Chemist and Pharmaceutical and Fine Chemical Trade Journal	3.55
Pharmaceutisch weekblad voor Nederland.....	3.53
Archives international de pharmacodynamie et de therapie...	3.52
Chemical Reviews.....	3.47
Drug and Cosmetic Industry.....	3.47
Schweizerische apotheker-zeitung.....	3.46
Drug Topics.....	3.44
Pharmazeutische monatshefte (Vienna).....	3.44
Pharmazeutische post (Vienna).....	3.36
American Journal of Medical Sciences.....	3.32
Revue d'histoire de la pharmacie.....	3.28
Annals of Tropical Medicine and Parasitology.....	3.26
Bulletin des sciences pharmacologiques.....	3.26
American Journal of Clinical Pathology.....	3.23
Deutsche pharmakologische gesellschaft Verhandlungen....	3.18
Pharmaceutical Journal (Montreal).....	3.16
Drug Merchandising (Toronto).....	3.14
Northwestern Druggist.....	3.11
Merck's jahresbericht.....	3.11
National Association of Retail Druggists Journal.....	3.10
Australasian Journal of Pharmacy.....	3.06
Drug Trade News.....	3.04
Journal of Engineering Education.....	3.03
Journal of Chemotherapy.....	2.90
Pharmaceutisch Tijdschrift voor Vederlandsch-Indie.....	2.90
Pharmacie francaise, Paris.....	2.86
Pharmaceutical Society of Japan Journal.....	2.78
Southern Pharmaceutical Journal.....	2.76
Tile and Till.....	2.73
Pharmacal Advance.....	2.73
Chemical and Metallurgical Engineering.....	2.68
Apothecary (Philadelphia).....	2.63
Spice Mill-Sections on Flavors.....	2.63
Rocky Mountain Druggist.....	2.62
Acta brevia Neerlandica de physiologia, pharmacologia, microbiologia, etc.....	2.59
Meyer Druggist.....	2.34
National Wholesale Druggists Association Proceedings.....	2.33
Drug Progress (Illinois Pharmacy Assoc.).....	2.32
Chemist analyst.....	2.30

New York State Pharmacist.....	2.26
West Coast Druggist.....	2.26
Druggists' Forum (Upstate New York Pharmaceutical Council)	2.13
National Druggist.....	2.00
New Jersey Journal of Pharmacy.....	1.90
Current Researches in Anaesthesia and Analgesia.....	1.88
Union pharmaceutique (Paris).....	1.88
Bulletin of Pharmacy.....	1.87
Drogheria	1.86
Detroit Retail Druggists' Association Journal.....	1.83
Archiv za hemiju i farmaciju.....	1.74
Pharmaceutica acta helvetiae.....	1.72
Chain Store Age.....	1.44
Pacific Drug Review.....	1.31

Among the the top half of the list, 22 of the journals are purely professional, 20 are chemical, 10 are biological, and 5 are medical. Trade journals do not appear in the top half. This should be heartening to those who believe that the fundamental chemical, biological and medical disciplines should dominate education in pharmacy. Likewise, it shows that the trade journals do not rank high in the opinion of professors of pharmacy.

The ratings assigned journals in foreign languages appear to be somewhat inconsistent. Thus, "*Acta brevia neerlandica de physioogie, pharmacologie, . . .*", "*Drgheria*" and "*Archiv za hemiju i farmaciju*" appear to be rated low more on the basis of unfamiliarity than of quality. This raises the question of language requirements for pharmacy students. Since the professors of pharmacy rank many foreign journals quite high, it would seem logical to expect a basic requirement of a reading knowledge of German and French in the colleges. This requirement is not universally imposed at the present time.

The place of the trade journals in a pharmacy library would seem worthy of discussion. Some of these are purely commercial, serving as advertising media for all kinds of goods. Some professors argue that trade journals have no place in the library. Others maintain that they are needed for their negative values. In other words, the instructors can analyze and expose fallacious advertising for the students. Instructors who are interested in the problem of controlling the sale and use of quack remedies will need the trade magazines, both honest and unscrupulous. Their chief danger in a pharmacy list

lies in their attractiveness, which will often seduce a student's attention and use his valuable time.

One notices that many of the journals which rank high on this list fall within the limits of several subject fields and would be located in several departmental libraries. The University of Colorado, for instance, received 44 journals on this list. Of these only 20 are in the Pharmacy Library. The rest are in the main library, and the chemistry, engineering and biology departmental libraries. Since this fact is true of the literature of all scientific fields, does it not suggest that a combined science library would save the faculty and students a considerable amount of time and the universities a good deal of money? At first, this may sound like a radical innovation, but further consideration will bring to light many advantages, the chief one being accessibility.

This study has presented an evaluation of pharmacy journals on the basis of a consensus of opinion among professors of pharmacy. But, one may ask, does the use of these journals conform to the pattern of the evaluation? Do the students and faculty members read only the more important journals, or to what extent is their attention distracted by the more readable and typographically more attractive trade journals?

This aspect of the problem should be considered in any attempt to evaluate the literature of pharmacy, and the author suggests that such a study be undertaken, using the techniques developed by the University of Chicago Graduate Library School for studying reading behavior.

It might also be well for the profession to repeat this study every five years as a basis for discovering trends in the journal literature. For example, shifts in the relative emphasis placed on biology and chemistry in the pharmacy curriculum should be reflected in the attitude of the faculties toward the journal literature.

Copies of Proceedings of the Association for all but a few of the earliest years are still available in the office of the secretary. Any college that does not have a complete file for its library should ask for missing numbers. Numbers preceding the time the college became a member of the Association may be had at cost. Address Zada M. Cooper, State University of Iowa, Iowa City, Iowa.

An Old Timer Looks at the Pharmacopœia¹

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In discussing pharmacopœial affairs we are struck with the fact that so many, especially the younger men, know very little about the USP Conventions. With this in mind we believe that delegates selected to the 1940 meeting should study carefully the abstracts of proceedings of the 1930 meeting. Application for them should be addressed to L. E. Warren, Secretary, 2 Raymond Street, Chevy Chase, Maryland. Ordinarily a majority of those commissioned by their respective organizations to have a part in the deliberations of these decennial gatherings have little idea of the mechanics of the organization, methods of procedure, how the officers, Revision Committee members and Board of Trustees are elected, and even less of the tremendous political pressure that is used to keep or gain control. Indeed, we strongly suspect they are not even well informed about all the organizations that are entitled to send delegates. For this reason we believe that Article II of the Constitution and By-Laws should be quoted here for the information and guidance of those who have little opportunity to study these problems.

"ARTICLE II "Membership

"SECTION 1. The members of the United States Pharmacopœial Convention, in addition to the Incorporators and their associates, shall be delegates elected by the following organizations in the manner they shall respectively provide: Incorporated Medical Colleges, and Medical Schools connected with Incorporated Colleges and Universities; Incorporated Colleges of Pharmacy, and Pharmaceutical Schools connected with Incorporated Universities; the Mellon Institute of Industrial Research of the University of Pittsburgh; the School of Hygiene and Public Health of Johns Hopkins University; Incorporated State Medical Associations; Incorporated State

¹This is the third of a series of articles published in this Journal for the purpose of giving those interested in the revision of the United States Pharmacopœia, a clearer conception of the manner in which it is done. Other articles appeared in the July and October, 1939, issues of this publication.—Editor.

Pharmaceutical Associations; the American Medical Association; the American Pharmaceutical Association, the American Chemical Society, the National Association of Retail Druggists, the National Association of Boards of Pharmacy; and the Federation of State Medical Boards of the United States; provided that no such organization shall be entitled to representation unless it shall have been incorporated within and shall have been in continuous operation in the United States for at least five years before the time fixed for the decennial meeting of this corporation.

"Medical and Pharmaceutical Associations and Colleges of Medicine and Pharmacy in Hawaii, Porto Rico, the Philippine Islands and in the Republic of Cuba approved by the Board of Trustees and the Committee on Credentials, shall likewise be entitled to representation by delegates on the same basis as the other Associations and colleges mentioned in this Section.

"SECTION 2. Delegates appointed by the Surgeon-General of the United States Army, the Surgeon-General of the United States Navy, the Surgeon-General of the United States Public Health Service, the Secretary of Agriculture, the Secretary of Commerce, the Association of Official Agricultural Chemists, the Association of American Dairy, Food and Drug Officials, the National Wholesale Druggists' Association, the National Dental Association, the American Drug Manufacturers' Association and the United States Division of Customs, and by the organizations not hereinbefore named which were admitted to representation in the Convention of 1900, shall also be members of the corporation. Each body and each branch of the United States Government above mentioned shall be entitled to send three delegates to the meetings of this corporation. But no such delegates as are provided for in this article shall be members until their credentials shall have been examined and acted upon as provided for by the By-Laws. Delegates admitted as members at any decennial meeting shall continue to be members of the United States Pharmacopœial Convention until their successors shall have been appointed and admitted as delegates to the ensuing Convention and no longer."

It is interesting to note that in addition to the organizations named above the alumni association of one college of pharmacy is permitted to send delegates. So far as we can

learn it is the only alumni society in the country that is thus privileged. Further, in addition to representation from *state* medical and pharmaceutical societies three *local* pharmaceutical and one *local* medical society are also included among those permitted to have delegates present. This is indeed an anomalous situation. The reason lying back of granting such privileges to these special groups must be left to the imagination of those of our readers who are familiar with the history of the politics of USP Conventions.

Rather detailed information about USP finances has now been widely disseminated. First, through our articles as published in the July and October 1938 issues of this Journal and more recently through a special bulletin on the subject published by the Board of Trustees. So far as we have been able to learn at no time in the past have interested parties had the opportunity of knowing many items of interest in pharmacopœial affairs, such as, to what individuals payments were made, in what amounts and for what special services. We are for pitiless publicity of such data for those who have the right to know.

Whether or not the Board of Trustees was led to publish such a statement at this time by the appearance of our articles cannot be determined. We are, however, constrained to observe that whatever motive lay behind this action they have performed a wise and useful service. Let us hope that such public statements will be forthcoming as regular procedure of the Board in the future.

Close study of the Board's financial statement and of the material furnished the writer by them for his second article reveals some extremely interesting data. We are tabulating a few of the major items on a purely statistical basis leaving to our readers whatever conclusions may seem justified from them: Total amount allotted for research as per Board's statement, \$32,319.17.

We compare below the amount allotted for research during the period covered with a few other major items of expenditure. If you are interested in following these comparisons further we urge you to study both the data we have published and that contained in the bulletin issued by the board. It makes interesting reading.

Administrative Expenses of the Board of Trustees amounted to.....	\$23,378.84	or 72.6% as much as the total research allotment.
Secretarial and Stenographic Assistance to the general chairman of the Revision Committee	\$29,930.17	
Editorial and Technical Assistance to the general chairman of the Revision Committee	\$ 4,940.64	or 7% more than the total for Research.
Total	\$34,870.81	
Total honoraria paid to all members of the Revision Committee and certain authors.....	\$48,323.90	
Less salary of general chairman of the Committee to April 30, 1939.....	\$32,250.00	
All other members of the Revision Committee, etc.	\$16,073.90	or slightly less than half of chairman's salary.

A break down of the Research Allotment has been graciously furnished the writer by Dr. Beal and the following interesting facts are gleaned from it: Under the direction of a member of the Revision Committee whose honorarium was \$1,000, the Mellon Institute for Industrial Research received from research funds \$9,704.90. These two items make up a total of \$10,704.90 or 33+ % of the total research allotment. Under the general direction of a second Revision Committee member whose honorarium was \$1,000 an additional \$4,705 was spent for research. These two items of \$5,705 are 17% of research allotment. The total amount spent under the direction of these two members of the Revision Committee, \$16,409.90, is approximately one-half of total research allotted. It is fair to say that these two men had very important assignments.

We are giving this data with no comment except that we have every confidence that all monies have been adequately accounted for. The wisdom of the distribution as indicated above must of course be a matter of individual judgment. This should be given most careful study before the 1940 Convention by those who have little or no personal monetary interests at stake.

We are aware that many of the colleges and universities of the country and the better pharmaceutical, chemical and biology laboratories including those of the Federal Food and

Drug Administration contributed without stint of the time and talent of their staff members and in instances of materials also to USP research problems without any drain whatever upon USP finances. This is a service that most of us are glad to contribute in helping to make the pharmacopœia a better and more useful book.

The fourth and last article in this series will appear in the April issue of this journal.

Pharmacy As An Agency of Public Education¹

WALTER D. COCKING

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At a recent international conference held in New York City of business and professional people, industrialists, farmers, representatives of organized labor, representatives of civic organizations and leaders from the field of public education it was held unanimously that public education is the best deterrent of war. I should like to propose that if the agency of public education is considered a mighty instrument of as great or greater import than instruments of war in determining the fate of the peoples of the world, it should be of even greater import in teaching people how to live together satisfactorily, how to make a living, and should be the most important of all forces in helping to achieve the ultimate aim of every man, that of happiness. To you who are engaged in the vocation of pharmacy, therefore, I would direct your attention to the importance of public education in the field of pharmacy. Particularly would I have you address yourselves to the obligations and objectives that you have as a profession in the development and promotion of sound policies of public education.

Pharmacy has a long and honorable history. It is one of the oldest of the vocations in which mankind has engaged. It has always been recognized that its supreme aim is the good it might render. It has had a cataclysmic growth. Naturally as science has advanced pharmacy has felt its effects. The

¹Read before the joint session of the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy and the American Pharmaceutical Association at the 1939 meeting at Atlanta

herb gatherer and dispenser of former years has given way to the trained scientist. He, basing his work upon the results of research, employs his trained mind and understanding of causes and results and becomes one of the indispensable servants of mankind and one of those whose services are most beneficial. Everywhere today is found a drug store. Almost every city block boasts of one or more such establishments. In the vast majority of the rural neighborhoods of America a drug store is an important institution. No matter what the size of the village one expects to find among its small cluster of buildings on its single street a place designated as the village drug store. The growth of the drug store has been amazing. The results of the service which it provides have been truly magnificent.

Public education in America is the foundation stone of our democracy. Washington in his farewell address concluded his advice to the nation in these words: "Promote then as an object of primary importance institutions for the general diffusion of knowledge." Jefferson, who at the end of a long and most useful life and to whom had come countless honors, advised that the epitaph which he desired on his tombstone should refer to his work as an educator rather than to his work as a statesman. Jefferson in his writings, in his public addresses, and in his counsels proclaimed the importance of education, the utter necessity of public education to the life stream of the American democracy. He it was who proposed and had adopted the motto which marks the University of Virginia even today: "Ye shall know the truth and the truth shall make you free." Jefferson it was who probably best saw and best proclaimed the value of public education to all phases of life and to all vocations in which people living in a democracy participate.

It is probably desirable to restate here that great changes have come in American society since the times of Washington and Jefferson. As a result there is need for equally great changes in public education if America is to be the instrument which the early leaders of this nation hoped it would become. American society is no longer a simple society. Manufacturing unknown in the time of Jefferson has caused Americans to become an industrial people at the same time working alongside of a mechanized agriculture. "The opportunities and responsibilities of the individual in this society are correspond-

ingly complex." Beard points out: "Education must keep alive memories, linking the past with the present and tempering the sensations of the hour by reference to the long experiences of the race. . . . Concerned with truth and the great powers of mind and heart, education is bound to assert the liberty in which they may flourish, to quicken minds, to encourage searching and inventiveness, to employ tolerance and the judicial spirit, to inculcate habits of gentleness and justice." No barbarism can destroy the effect of public education on an enlightened citizenship, if the torch of learning is held high.

I would point out also that an important part of knowledge is ethics. Knowledge alone is insufficient. A pharmacist may know and be able to use the fruits of knowledge and yet may exploit his community. There is nothing in an educational fact which causes the one who has it to use it for the benefits of mankind. As Beard points out ethics is, therefore, not a side issue with education but is a central concern, a concern which gives direction to the spread of knowledge. In the days which lie ahead in this troubled period of the world's travail, public education is headed for heavy seas. All of us who have the happy opportunity to be members of the world's greatest democracy would seem to have a large obligation and responsibility to preserve it, and to see to it that it holds true to its original place in American life as the foundation of American citizenship.

In the promotion and development of public education many agencies have played a large part. However, the public schools have largely been given the major task. In the period of 150 short years, public schools in the face of great odds have accomplished a tremendous task in the development of a necessary system of education. But the school alone cannot and should not do the whole job. Other agencies have an obligation for the education of people. I shall not worry you here with a long listing of such agencies. May I say, however, in all earnestness and sincerity that it seems to me that every honorable vocation in America must accept as a part of its functions the promotion and development of public education. This is true of pharmacy. Pharmacy must recognize its obligation and pharmacy must accept its responsibility.

In a democracy we believe in the development of both leaders and followers. Henry Suzzallo has pointed out that a citizen of a democracy should be both a follower and a leader.

The teacher goes to his friend the pharmacist when he is in need of scientific services which the pharmacist possesses and therefore the pharmacist is the leader, and the teacher the follower. On the other hand, when the young son of the pharmacist is of school age the pharmacist taking his boy by the hand leads him to the school teacher and asks him to guide his child along the avenues of knowledge. The teacher then is the leader and the pharmacist is the follower. This conception of an American citizen gives us a true picture of a successful democracy at work. It also provides something of an insight into the part which the pharmacy can play as an educational agency.

In the olden days the general store was a universal meeting place of the people of the neighborhood. In that store educational meetings informal in character were held on any and all occasions. There under the beneficent direction of the storekeeper all problems of the community were faced and many of them solved. National and international questions alike were discussed, information presented, and solutions proposed. Today the general store is a relic of the past. Its place has been taken, as far as it has been possible to replace it, by the corner drug store. It has been said that the modern drug store is America's dispensary of any and all goods and services needed by mankind. It is almost literally true. To the drug store come all the people of the neighborhood not only to purchase services and goods but also to meet their friends and neighbors, to carry on informal discussions, to follow the American way of life. What an opportunity for public education which this place of business presents to the pharmacist of vision and intelligence. In addition to being a trained scientist he needs to be a trained philosopher, a keen and understanding teacher, a student of human nature, a seer, above all he has need to exemplify good citizenship. Thus through act and word, through counsel and deed, the pharmacist in the corner drug store has the opportunity and I believe the obligation to serve as an educational leader to the community which he serves.

Such being the job of the pharmacist it entails heavy obligations. It requires that he who would practice pharmacy must be a well-rounded individual. He must be trained scientifically in his profession. He must have a large background of general knowledge, he must understand people, he must

appreciate the psychology of the individual and of the group, he must understand political forces, he must have those traits of personality which attract and hold people. The vocation of pharmacy has no place for the weakling, only strong men, well trained, can achieve, success. Given these conditions there is no end to the opportunity which the pharmacist has in the proper education of the people of his community.

In conclusion may I point out the great need for pharmacists with the qualities outlined above. Not only for the purpose of success in their chosen field, but more than that in making it possible for the democratic way of life to succeed, and for a people to find the real satisfactions of life. It is a real challenge which I place before you. We of the school call upon you who are pharmacists as we call upon the leaders of other vocations to enroll along with us, and for the period of the war which never ends, to aid in driving out ignorance, disease, crime, and all the other parasites which eat upon the vitals of people; and to help instill in their place good health, happiness, understanding of others, and all the other qualities which make for good citizenship and through which the real satisfactions of life come.

Modern Educational Methods and Trends¹

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The object of this paper is to describe some of the methods and trends of modern education which can be applied to the education of pharmacists.

Education in the past in the United States has been individualistic. A principal aim has been to get the individual ahead in the world. The business of getting ahead in the world has been measured by economic and social success. The criterion of economic success has been the acquisition of wealth; that of social success, the attainment of prestige.

Today, education stresses also the aim of good citizenship. The value of an education is measured by the contribution of the individual to the welfare of the society in which he lives.

¹Read before the Conference of Teachers of Pharmacy at the 1939 meeting at Atlanta.

Schools which educate pharmacists should furnish broad culture in the fundamental fields of knowledge—the natural sciences, the social subjects, including history, economics, government and sociology, literature, the languages and the fine arts. Technical and specialized training in pharmacy should be parallel and terminal to broad, basic education. To educate a good citizen would be the aim as well as to train an expert pharmacist.

In the space of this paper it is impossible to adequately consider the conditions which have brought about the change in emphasis from individualistic education to socialistic. Thinkers among educators insist that the schools give emphatic consideration to the problems of human relations in order to reduce the amount of lag which today exists between the natural sciences and the humanistic subjects. The humanities must be given an opportunity to catch up with the advance of the natural sciences in application to the problems and lives of the American people. Even children today are aware that the grave problems of this country and the world are governmental, economic and social. The development of social intelligence for good citizenship is, therefore, the prime duty of every American school.

Employers in industry and business today insist, more than ever, upon satisfactory traits of character and personality in their employees, as well as technical skill. A recent study made on the Pacific coast showed clearly that the main cause of failure of employees in industry and business was not lack of technical knowledge and skill but weakness in personality—or defects of character.

In the education of pharmacists there should be increased emphasis upon those subjects and activities which contribute to character and personality development. Psychology, ethics and philosophy should be stressed as well as abundant opportunity for participation by students in curricular and extra-curricular activities which furnish rich experiences for growth of personality and development of character.

There are many new methods in modern education which apply to teaching and learning situations. Only a few of these methods can be briefly described here, and some application made of them to the education of pharmacists.

First, modern methods place the needs, interests and purposes of the students ahead of the need to teach traditional

subject matter for subject matter's sake. The prospective pharmacist should have reasonable freedom to arrange his educational program to meet the needs of his personal ambitions and future job, as far as it can be predicted. Under an individual program the student should be held to superior scholarship on the ground that the institution has the right to expect his best in that it has met his interests.

Second, modern methods place the pupil, and not the teacher, at the center of a teaching-learning situation. The lecture method, with more or less passive students, is rejected in favor of laboratory work, demonstration and discussion in which the students have principal parts. Modern psychology stresses the principle that the student learns only to the degree that he reacts to situations, and all that he does learn are the reactions that he makes. It is obvious, then, that every opportunity should be given for student activities, in good method.

The emphasis upon the aim of good citizenship in modern education makes it necessary that pupils work and learn in cooperative groups instead of by the traditional, highly individualized and strongly competitive methods of the past. It is expected that pupils will learn to get along with one another as well as to learn the subject; it is expected, even, that they will help one another to learn the subject. Working together in study and discussion groups, and reduced use of competitive systems of grading, are some of the implications of cooperative, group methods of learning and teaching.

Modern education is realistic. Direct methods of attack in teaching and learning have replaced roundabout ways of doing things there. Good method agrees with geometry that a straight line is the shortest distance between two points. For example, it is believed that the best way to teach a pharmacist to put up a prescription is to have him go through the actual experience of preparing the prescription instead of having him go through some sort of related exercise, such as an experiment in chemistry, or even reading about how to put up the prescription in some book.

A second way of attaining realism is by discovery and use of actual problems of the learner and of life in teaching. Actual problems of the salesman, actual problems confronting the druggist in obeying the laws about drugs in Georgia—these attacked in the schoolroom just as they are met in drug stores of Georgia, and not as they are described by some textbook

writer who has written *about* selling goods or drug laws in New York or Michigan.

Finally, modern scientific education has proved the values of certain methods which are very applicable to teaching of pharmacy:

The first is concerning the mental process called *generalization*, or drawing a conclusion, which is general in nature, from particular facts. Students should be led to generalize if they are to be expected to apply what they have learned to other and similar situations. In addition, there should be abundant practice in application and illustration of more important generalizations if education is to be made functional for *other school* and *out of school* experiences.

Second, modern science has proved at least equal merit for teacher or pupil demonstration as compared to individual student laboratory experimentation. By larger than usual apparatus, use of various types of lanterns and the like, many experiments can be demonstrated even before large groups of students. Individual experiments should not be abandoned altogether but may be largely reduced in number and used in situations most appropriate to close, personal observation and manipulation.

Third, modern science has proved the value of objective procedures in measuring the results of teaching and in research. Teachers of pharmacy should be trained in the methods of educational measurement and statistics; they should be able to use and to make new type objective tests and examinations, make tables and construct graphs, handle data by statistical treatment and interpret statistical data.

It is an inspiration and a challenge to a worker in the field of general teacher education to address such a highly specialized group as this is; the general educator would welcome the opportunity to learn of the special methods and trends which have been developed for the education of pharmacists, and which may have application to the general field of teaching or teacher education.

NOTICE

A blank check is enclosed in this number for your convenience in subscribing for Volume IV of the American Journal of Pharmaceutical Education if you have not already done so.

The Responsibility of Colleges of Pharmacy to Research¹

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This paper attempts a brief analysis of the responsibilities of colleges of pharmacy in the matter of Research and their failure in some respects to meet them. Until a few years ago these responsibilities were nil and there was no problem of neglect as colleges of pharmacy were for the most part neither prepared, nor had the inclination for graduate study.

As the faculties became sprinkled with men possessing research experience and as the curricula were extended to four years, opportunities for research were created. This is evidence that our educators have not been static and that there has been constant progress in meeting the responsibilities of pharmaceutical education. But this progress has been too narrow on the research side of the picture. The investigation program has been too one-sided.

We accepted research as a symbol of progress; indulged in it with abandon but small planning. This meant that a research division not typical of the profession has developed. What we are largely doing under that guise has little relation to what we define as pharmacy and for which we are licensed to practice by the several states. I am not criticizing. For one thing I am living in a glass house and do not dare to throw stones. My own candidates for the Master of Science and Doctor of Philosophy degrees have carried on investigations in toxicology, pharmaceutical chemistry, and phytochemistry. These I mention because they are typical of our graduate work. They are in fields of science related to pharmacy. In fact they are a part of pharmacy, and solid research within their confines done by pharmacy faculties and students establishes us on an even plane with other recognized professions. To that extent the investigations justify themselves and can be considered necessary. The point is that they accomplish little of direct benefit to the large body pharmaceutical—the men and women linking the consuming public to the physician and manufacturer of medicines.

¹Read before the Conference of Teachers of Pharmacy at the 1939 meeting at Atlanta.

These people are the backbone of our profession. Most of us owe our jobs to them, for were they suddenly cut to one-third their number it would no longer be necessary to employ many of us as instructors. They run a business—no matter how professional the establishment or how scientific its approach to the pharmaceutical angle of public health, it must still remain a business.

Since the bulk of our graduates go into business, since our chief responsibility is to train them to adequately solve its peculiar problems, and since research is the accepted means nowadays of finding answers and keeping a profession always on the march, it seems to me we should switch more of our effort and money to this rather poorly marked channel.

Research to that end would be typical of pharmacy. It would be of direct benefit to the majority rather than the few. It would more nearly fulfill our responsibilities in a research way to the profession than any of our other scientific efforts.

There are some serious difficulties in the consummation of a general program of this kind. Two of the major ones are going to be hard to overcome, but they should be mastered. First, investigations designed to forward the business of pharmacy will cause the schools of economics to look askance. Students desiring advanced degrees as a result of this type of work might be asked at first to take them in the division of economics. Second, there is a distinct feeling that such work is not as scientific or deserving of advanced degrees as the synthesis of chemicals, for example. Whether those chemicals are of any value after they are produced is of no moment. This prejudice, where it exists, must be overcome. We must develop the fact that it is just as scientific and degree-worthy to help the business of pharmacy as it is to analyze the oils in some pine tree. It should be obvious at the start that the value of such work to the mass of the profession is certainly greater, and therefore deserving of a commensurate academic recognition.

In this brief paper I have attempted to point out that our present research programs are progressive and have evidenced the calibre of our faculties, but that in one important direction they failed to measure up to their responsibility to the profession. Further, that to change this picture materially will necessitate much hard work, at first going against the current

of academic opinion, but that we owe it to the profession to carry on.

I would like this Conference to recommend to the parent body that a committee be appointed to study ways of developing a widespread program of this type of research because there is little being done and because the likelihood of the situation changing in the face of the two difficulties I mentioned is small without some sort of fostering by a recognized academic body.

The Modernization of Pharmacy Laws*

ROBERT L. SWAIN

Secretary Maryland Board of Pharmacy, Editor Drug Topics

The Committee on the Modernization of Pharmacy Laws was established to serve the following purposes:

1. To stimulate increased interest on the part of pharmacists for effective and modern pharmacy laws.
2. To make a comprehensive survey of existing pharmacy laws.
3. To prepare and submit to the various states, a draft of a model pharmacy act, to be known as the Uniform State Pharmacy Act, so that it might be adopted in its entirety or, if this was not feasible, those individual sections found most desirable might be incorporated in the existing state laws.
4. To serve as the authoritative agency on legislative matters in pharmacy and to give some sense of direction to pharmaceutical legislative efforts in the various states.

While the Committee cannot claim that each of these objectives has been fully met, it can, nevertheless, feel some satisfaction in the success which its work has attained. There is no doubt that an increased interest in pharmaceutical legislation has come about in recent years and there can be no doubt that much of this interest is traceable directly to the activities of this Committee.

Several papers which have appeared in the pharmaceutical press have referred to the work of the Committee as a constructive influence and have urged that it be placed on a

*This paper is a continuation of the work of the Committee on the Modernization of Pharmacy Laws. The original report was published in Vol. I, No. 4, of this Journal. The 1938 report appeared in Vol. II, No. 4. This paper constituting the third report was presented at the 1939 meeting at Atlanta. The personnel of the Committee covered by this report consists of Robert C. Wilson, Arthur D. Baker, E. J. Prochaska, S. H. Dretzka, George W. Mather, and Robert L. Swain, Chairman.

permanent basis. The chairman of the Committee and other members have held many conferences on legislative matters in various states and have, on numerous occasions, been asked for advice and counsel on specific legislative measures. From all of this has come about a greater alertness on the part of pharmacists to their legislative needs and a keener eagerness to have them met in a sound and effective manner.

Shortly after the 1938 convention, the Committee was augmented by the inclusion of the secretary of each state board of pharmacy and in order to inform these new members with respect to the work which had previously been done, a pamphlet containing the 1937 and 1938 reports of the Committee was prepared and mailed to them. These covered the basic studies of state pharmacy laws made by the Committee. The board of pharmacy secretaries were asked to study the progress so far attained and advise the chairman of the Committee with respect to how the work should proceed in the immediate future.

The general response was to the effect that a pharmacy act should be drawn which, if passed in its entirety, would result in legislation which would be expressive of pharmaceutical education on the one hand, and thus designed to meet the needs of public health so far as pharmaceutical practice is concerned, on the other. It was the advice too, that the bill should be drawn so that sections could be lifted from it and incorporated in existing state pharmacy acts in the event that it was not considered feasible and practical to secure the enactment of the bill as a whole.

The secretaries of the state boards of pharmacy are unquestionably the best informed group in the United States with respect to existing pharmacy laws and their consensus of opinion affords the most authoritative basis for a legislative program. It was for this reason that the advice received from the states was followed by the Committee and in due course a uniform pharmacy act was drawn which, to the Committee at least, seemed well designed to meet the legislative needs of pharmacy, and, at the same time, capable of that practical adaptation which the secretaries themselves had suggested.

Toward the close of December, after much thought, study, and work, a tentative draft of the proposed uniform pharmacy act was submitted to every board of pharmacy in the United States, again with the request for comment, criticism and sug-

gestion. A number of board secretaries responded and the general feeling was that the draft as prepared by the Committee was comprehensive and approached our legislative needs in a direct and constructive sense.

The purpose of the act was clearly set forth in the following declaration of policy which was incorporated in the bill in the form of a preamble:

"The Legislature (or whatever other designation is used in referring to the law-making body) of the State (or Commonwealth) of———, hereby finds that it is essential to the public health and safety to regulate and control the manufacture, sale and distribution of drugs, cosmetics and medical supplies as defined in this Act:

"It is, therefore, hereby declared to be the policy and purpose of this Act to vest in an administrative agency composed of specially trained, competent and skilled persons the power and authority to administer and enforce the provisions of this Act, to the end that the manufacture and distribution of drugs, medical supplies and cosmetics and the compounding and dispensing of prescriptions may be properly regulated and supervised in the interest of public health and safety."

The bill then proceeded with the following sub-divisions:

1. Basic definitions.

In order to achieve uniformity "drugs" and "cosmetics" were defined as in the Federal Food, Drug, and Cosmetic Act. Feeling, however, that these definitions might not be entirely adequate to meet the public health requirements in the field, the following definition of "medical supplies" was included:

"The term 'medical supplies' shall, in addition to drugs, include absorbent cotton, bandages, gauze, sutures, compacts, compresses, surgical dressings of all kinds and descriptions, and all other products, preparations and appliances used in the diagnosis, cure, mitigation, treatment or prevention of disease in man or other animals; or (2) to affect the structure or any function of the body of man or other animals, but shall not include instruments, appliances or devices used by physicians, dentists or veterinarians in the pursuit of their professional practice."

2. Administrative agency, together with the power and authority conferred upon it.

3. Qualifications for registration as a pharmacist.

4. The renewal of certificates of registration.

5. Limitation of the sale of drugs and medicines to pharmacists.

6. Limitation of the compounding of prescriptions to pharmacists.

7. Conferring power upon the administrative agency to designate the minimum of technical and professional equipment a pharmacy must at all times possess.

8. Making it mandatory for the following activities to be carried

on under annual permits issued by the board of pharmacy:

- a. A retail drug store.
 - b. The manufacturing, etc., of drugs, cosmetics or medical supplies.
 - c. The wholesaling, etc., of drugs, cosmetics and medical supplies.
 - d. The distribution of drugs and medicines by dispensing physicians, dispensing dentists, and dispensing veterinarians.
 - e. The maintenance of a pharmacy in any hospital, clinic, or dispensary.
 - f. The selling at public auction of drugs, cosmetics, or medical supplies.
 - g. The distribution of samples of drugs or medical supplies.
 - h. The itinerant house to house vending of drugs, cosmetics or medical supplies.
 - i. The operation of a store other than a pharmacy for the handling of such drugs and medical supplies as the administrative agency might stipulate and direct.
9. Forms, fees, renewals and revocation.
 10. Right of appeal from the action of the administrative agency.
 11. Penalties for violation of the law.
 12. Permitting the administrative agency to proceed by injunction against violators of the act.

While no attempt will be made in this report to discuss any of these sub-divisions in detail, it can be said that the draft was built upon the belief and knowledge that the public welfare required that greater safeguards be thrown around the manufacture and distribution of drugs, cosmetics, and medical supplies, and that in order to do this it was necessary to give the administrative agency broad regulatory powers so that every phase of production and distribution would be under professional supervision and control.

Therefore, no manufacturing of drugs, cosmetics, or medical supplies should be carried on except under permits issued by the administrative agency and in compliance with conditions which the administrative agency would set up in the interest of public health; the wholesaling of drugs, cosmetics and medical supplies should be carried on under permit, and under conditions laid down; and retailing of drugs and medical supplies should be restricted to registered pharmacists except in those instances where, in the judgment of the administrative agency, it was necessary or desirable to grant limited rights under permits to others.

Among these limited rights to be exercised under permit was the dispensing by physicians, dentists, and veterinarians

and the sale of designated drugs and medical supplies by stores other than pharmacies.

It requires only the mere recital of the above objectives to emphasize their controversial character and thus to anticipate some of the difficulties in the way of having them approved by the state legislatures. In other words, the draft of the Committee, irrespective of how well it was prepared or how much thought given to its various provisions, would be subjected to the same type of pressure and thus squeezed by the same sort of compromise that has resulted in the present pattern of pharmaceutical legislation.

After the bill was in the hands of the secretaries of the various state boards of pharmacy there was general agreement that it would not be possible to place the dispensing doctor under permit issued by the board of pharmacy and that other provisions might be equally difficult of enactment. When these criticisms came to the attention of the chairman he admitted quite frankly that the criticism was justified and that the difficulties in the way of enactment had, if anything, been understated. It was pointed out too, that the bill was drawn with the full and clear knowledge that it would involve controversial matters and that its passage in the form in which it was drawn would be difficult, if not indeed impossible, in most, if not in all states at this time.

The chairman also pointed out as forcefully as he could that we had long had the knowledge that any legislative effort to enact pharmacy laws which really sought to accomplish what a true pharmacy act would accomplish, would be controversial, and we had long had the knowledge, born from an unvarying experience, that there would be strong and persistent opposition to the realization of our desires. The question was not whether the provisions were controversial or whether there would be difficulty in the way of enactment, but rather was there anything to be gained by continuing to put off the attempt to meet these needs through legislation.

The provision requiring the dispensing physician to operate under permit issued by the board was looked upon as desirable and, in fact, necessary, but the view was expressed that there would be no sense in attempting to accomplish this through legislation because the bill would have no chance of favorable action. The chairman, when faced with this comment said that the view was not new, that we had long recognized dis-

dispensing by physicians as one of the major pharmaceutical problems, and that there was much evidence that it was increasing. It was pointed out that, in many sections of the country, dispensing by physicians has grown to such proportions that the physicians have, for all practical purposes, taken over the professional work which would otherwise be carried on by pharmacists themselves.

The growth in the number of physicians' supply houses was referred to as another indication that dispensing by physicians was being stimulated by systematized, organized effort. It was also pointed out that the trend in medication was toward concentrates such as tablets, pills, capsules, etc., and that this trend was being capitalized by certain pharmaceutical manufacturers so as to make it easy for the dispensing physician to enter upon the practice of pharmacy and to be the source of supply of medication, not only to his own patients, but sometimes to the neighborhood as well.

Emphasis was laid on the belief that, desirable as it might be, there was slight possibility of securing legislation limiting the sale of drugs and medicines to drug stores. This was certain to be opposed by general dealers and all others interested in defeating restrictive sales measures of all kinds. The provision requiring sales of drugs and medicines, even in drug stores, to be made under the direction and supervision of registered pharmacists, was bound to provoke criticism. The more stringent requirement that poisonous and potent drugs be sold exclusively by registered pharmacists, upon whom was imposed the affirmative duty of informing the purchaser with respect to the articles desired, was characterized as radical and one which would arouse strong controversy and opposition among pharmacists themselves.

When faced with these outworn points of view the chairman said that the Committee was acutely aware that criticism and controversy would break around these proposals, that it was acutely aware that criticism and controversy had broken around every effort to secure professionally and socially sound pharmacy laws, and that it was acutely aware that, because we ourselves had always broken and run in the face of the criticism and controversy, that pharmacy laws were much more expressive of compromise and expediency than of the true relationship of pharmacy to public health. The general pattern of existing pharmacy laws was referred by the chair-

man, in answer to all comment that the uniform pharmacy act was too exacting, and the opportunity was made use of to emphasize the point that there would be no effective pharmaceutical legislation if it was to await the day when there would be no objection to its passage. The Committee was greatly impressed with the fact that the critics, in our own field, were much more active in pointing out why the uniform pharmacy act could not be passed than they were in helping to map out a program from which success might conceivably have come.

Several trade groups expressed the feeling that the Committee had drawn a bill which would adversely affect their interests. In some cases the comment was justified, and in others it was no more than the old cry of those determined to hold on to their old practices, quite irrespective of whether they were good or bad for the general public. In the proper cases the Committee stands ready to cooperate in writing amendments to the uniform pharmacy act which will correct unwarranted interference with trade groups.

This matter is referred to in this report at this time to again direct attention to some of the more insistent problems which are facing the pharmaceutical profession and to again give emphasis to the question of what possible chance is there to meet these conditions or to minimize their effects if some determined, persistent and systematized effort is not made to meet these conditions or to minimize their effects. Certainly, nothing is to be gained by continual reference to the seriousness of the situation and to excuse action on the ground of the difficulties involved.

The Committee feels that it has discharged its obligation in the matter by directing attention to the defects in existing pharmacy laws and pointing out ways and means of correcting them through modern and efficient legislation. All of the conditions which resulted in the establishment of this Committee persist, and all of the reasons advanced by the Committee for a modernization of pharmacy laws still confront us. All of the problems which might possibly be met by legislation still abound and all of the evils which legislation might possibly cure still menace us. In other words, we are faced with the necessity of maintaining some agency to take leadership in the field of pharmaceutical legislation and to work to the enactment of modern pharmaceutical legislation as a major pharmaceutical objective.

It is, therefore, recommended that a Committee on the Modernization of Pharmacy Laws be continued and that it be charged with the duty of studying existing pharmaceutical legislation and with the revision of the proposed uniform pharmacy act, in the event revision is found desirable. It is recommended too, that the secretaries of the state boards of pharmacy be continued as auxiliary members of the Committee and that every effort be made to stimulate and maintain their interest in the accomplishment of the purposes for which the Committee was primarily set up.

The Functions of Teachers of Pharmacy In Relation to the Teaching Profession¹

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The underlying function of the teaching profession in general is to stimulate, outline and promote an orderly process of thinking on the part of individuals and groups. This orderly process of thinking must not be confined to the limits of the particular subject matter, but of such scope and quality as will fit individuals and groups to fully comprehend the highest principles and practices of good citizenship.

Someone has said, "The function of education in general is not for the purpose of enabling an individual to earn a living, but to learn to live." The speaker might well have added that living, in its highest and noblest sense, carries with it the obligation to help others to so live.

Teaching must not be narrow in its scope even though the subject may be highly specialized, for if the teacher fails to correlate his specialized field with other fields and the problems of daily life, his subject becomes indeed narrow in scope. Again, if a teacher fails to take full advantage of the opportunity to prepare his student to assume a proper place in a complex society and give him some conception of his responsibility to society so that he may more nearly exemplify the principles of good citizenship, that teacher, regardless of his

¹Read before the Conference of Teachers of Pharmacy at the 1939 meeting at Atlanta.

field, fails in measuring up to the standards by which a teacher is eventually judged.

Pharmacy can by no stretch of the imagination be classed as a narrow, specialized field for it is all embracing in scope. There is no human activity which does not bear some relationship directly or indirectly to one or more of the ramified interests and practices of pharmacy and therefore subject to influence by them. The daily life of practically every citizen in America is thus intimately, but perhaps unconsciously, dependent upon pharmaceutical practices and products.

On a most conservative basis, from six to ten millions of the people of America come into daily contact with its pharmacists, and therefore it is readily apparent that the pharmacists of America have an opportunity for teaching and for influence comparable to no other group of people.

When it is considered further that these individuals who come into contact with the pharmacists of America are from every station in life and represent every condition of mind, of body and of emotion, and that they are thus amenable to advice and counsel, it becomes the responsibility of the pharmacist to render advice and counsel of the highest order.

Under these conditions and circumstances, every individual pharmacist of America should be a teacher in the sense that it is his responsibility to influence and direct the thinking and the practices of these individuals who seek his advice or counsel and to volunteer it when occasion demands. It is not inconceivable that the entire individual and national life of America may be directed into safe and sane processes of thinking and of living if the retail pharmacists of America as a group accept as their responsibility this opportunity to teach and to influence those whom they contact.

If then the individual pharmacists of America are to assume their full responsibility to serve as educators and counselors of the individuals whom they contact, it becomes the obligation of the teachers of pharmacy to so influence their students that they will go into the profession with a full comprehension of their duty to teach. Thus to no other group of people in America comes a more significant opportunity and responsibility than confronts the teachers of pharmacy in the various institutions of America.

In addition to his responsibility to his student, the teacher of pharmacy has a definite responsibility and obligation to the

teaching profession in general and he should by all means affiliate himself with the organizations which have to do with education in general as well as in his specialized field. He should by all means keep posted as to educational methods and trends so as to keep abreast of those practices which represent progress in education.

Speaking from the standpoint of one who has spent 30 years on a campus of a state university, there is every opportunity for the teacher of pharmacy to instruct teachers in other fields as to the aims and purposes and full significance of pharmaceutical education and practice. By reason of the fact that pharmacy is so diversified in its practices and in view of the fact that all the basic sciences find a place in pharmaceutical education in addition to the so-called cultural subjects, the teacher of pharmacy has the opportunity to cultivate a wide acquaintance with faculty members in other fields and to aid in guiding them as to the objectives sought in preparing students for practice in some field of pharmacy. At the same time he has the opportunity to gain from these other faculty members new and broader conceptions of the processes of education.

When the full significance of sound pharmaceutical education becomes a reality, there will come a demand for service courses in pharmacy to be given to various groups of students on our various campuses and this will be particularly true as regards those who intend to go into the profession of teaching or into home economics or into physical education.

The training of the teacher of pharmacy in the light of the above becomes most complex, for in addition to his training in his specialized field, he must have had training in many related fields so that he knows the language at least of those with whom he is associated in the teaching profession. He must of necessity have had some contact with the practice of pharmacy so that he may know how to train his students to cope with their every-day problems. By reason of the many and varied contacts he has, his training must be such that he can deport himself properly and become an integral part of the social order in which he lives.

If pharmacy has failed to progress as a profession and to be accorded recognition as such, it is due to the fact that the public and other professions have judged it by what they see in the average drugstore or on the campuses of our edu-

cational institutions. If it is to progress and assume its proper place, pharmacy must be dignified in the minds of the public and this process must begin on the campus where pharmacy is taught. This becomes the responsibility of the teacher of pharmacy of today and of tomorrow.

Historical Notes on Chemistry at the School of Pharmacy, University of Maryland¹

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The School of Pharmacy of the University of Maryland will shortly reach the end of the first century of its service to the State. Ushered into existence as the Maryland College of Pharmacy at a meeting of pharmacists and physicians held on July 20, 1840, the trustees at a meeting held November 9, 1840, resolved to have the College incorporated. The act of incorporation was passed by the General Assembly of Maryland on January 27, 1841.

Contrary to most American cities, where apothecaries were developed from English inspirations, Baltimore received its impressions in higher pharmacy from France and from the French refugees. From these and the Acadian exiles, Baltimore was furnished with several reputable apothecaries. In 1791 many persons fleeing from the massacre of Santo Domingo settled in Baltimore. Among these was a progressive pharmacist of rare ability and knowledge, Monsieur Edme. Ducatel. For over forty years he conducted the largest and most scientific of Baltimore's early retail drug houses. Under his tutelage came many of the later leaders of the profession, including Thomas G. Mackenzie and George W. Andrews, who were founders and also presidents of the Maryland College

1. When the American Chemical Society met in Baltimore in the spring of 1939, Dr. Walter H. Hartung and Dr. E. G. VandenBosche became very much interested in the history of chemistry. They realized that the history of chemistry in Maryland was closely connected with the history of the Maryland College of Pharmacy. This paper is the result of Dr. Hartung's suggestion to Dr. VandenBosche that he tell this story for the readers of the *American Journal of Pharmaceutical Education*.

of Pharmacy. Thus Ducatel has rightfully been called the "Father of Higher Pharmacy" in the city of Baltimore.

The compounding of prescriptions in early years was, for the most part, in the hands of physicians. The work was often relegated to the more or less inexperienced students of medicine, regarded as indispensable attachés to the physician's office. The pharmacist was mainly a vendor of crude drugs and a few galenicals, together with non-pharmaceutical commodities. The many new chemicals which were being used as medicinal agents soon made greater demands upon the physician's capacity and the pharmacist's knowledge. With the chemical industry in its infancy the compounder was often required to purify and prepare his own ingredients. It was soon realized that the practice of medicine and pharmacy should be separate professions, and all felt that the time was ripe for establishing an institution where the science and practice of pharmacy could be taught properly.

The College, upon its incorporation, at once organized a course of instruction in chemistry, pharmacy and materia medica. The first lectures began in November 1841. William Silver Thompson,¹ Alpheus P. Sharp,² and Frederick A. Cochran, three of the six students who attended the first session, were declared graduates at the first public commencement on June 19, 1842.

The lectures were delivered by members of the College, six being assigned the subject matter of the United States Dispensatory, while Dr. David Stewart lectured in chemistry. From 1844 to 1846 lectures in chemistry were given by Professor William E. A. Aiken of the Medical Faculty of the Uni-

1. William Silver Thompson was apprentice, clerk and partner of George W. Andrews, and after the retirement of Andrews, continued the business under the firm name of Andrews & Thompson until his death in 1894. He was connected with the Maryland College of Pharmacy from the time of his graduation until his death. He held the office of President, and was also Editor of the *Journal of the Maryland College of Pharmacy*.

2. Alpheus P. Sharp opened a drug store at Howard and Pratt Streets, Baltimore in 1847. He and Louis Dohme, who graduated from the Maryland College of Pharmacy in 1857, and who was an apprentice in Sharp's shop, established the well-known firm of Sharp & Dohme in 1860. They were joined by Charles E. Dohme, a graduate of the Maryland College of Pharmacy in 1862. Mr. Sharp joined the American Pharmaceutical Association in 1855, and the same year read before that body the first scientific paper that was presented to it.

versity of Maryland. The first professor of chemistry appointed by the Maryland College of Pharmacy was Lewis H. Steiner. Dr. Steiner was an able and talented instructor and the author of numerous publications, including the following:

Physical Science

Annual Magnetism and Hypnotism

Henry Cavendish and the discovery of the chemical constituents of water

Report of the progress of Medical Chemistry

The Medical Profession and Modern Chemistry

Report on Strychnia: Its physiological properties and chemical detection

The Chemistry of Fire

In 1861, upon the resignation of Dr. Steiner, Professor A. M. Mayer was made his successor, lecturing until 1864. Dr. Steiner then lectured for another year, later becoming head of the Enoch Pratt Library when it was founded in Baltimore. Dr. J. C. Carter was elected to the chair of chemistry in 1865, and in 1866 was succeeded by Dr. Thomas Helsby. This gentleman resigned in 1868 and Dr. M. J. DeRosset was elected. Apparently DeRosset, though a polished lecturer, possessed "little knowledge of practical chemistry. He rarely attempted to illustrate his lectures by experiments, and when he did so, failed completely." He lectured until April 1, 1873. On that day, William Simon, one of the foremost of its teachers, who was at the time Professor of Analytical Chemistry and director of the new laboratory, was chosen to fill the chair.

William Simon, son of a clergyman, was born in Germany, February 20, 1844. For six years, after school hours, he worked in a drug store, eventually enrolling in the University of Giessen, where he was granted the Ph. D. degree in 1869. He assisted at Giessen until the Franco-Prussian War broke out. In this war he saw active service. Arriving in America on November 1, 1870, he at once entered the services of Tyson's Baltimore Chrome Works. There he served as chief chemist, and later manager, for over 40 years. His investigations of the compounds of chromium led to discoveries which were made the basis of valuable patents for the manufacture of bichromates.

Under Dr. Simon's direction, in 1871, the Maryland College of Pharmacy established the first laboratory for instruction in analytical chemistry in the state. This was also the first required course in analytical chemistry established in any

college of pharmacy in the United States. It may be recalled that the Maryland College of Pharmacy was also the first college of pharmacy to establish a professorship of pharmacy.

Dr. Simon was for many years associated with the various schools that now constitute the University of Maryland. As indicated above, he became the first Professor of Analytical Chemistry in the Maryland College of Pharmacy in 1872, and was elected Professor of Chemistry and of Analytical Chemistry in this institution in 1873. He was Professor of Chemistry in the College of Physicians and Surgeons in 1872. In 1872-73 he found his work as Professor of Analytical Chemistry in the Maryland College of Pharmacy had increased so much as to preclude the continuation of his lectures in the College of Physicians and Surgeons. He resigned the position with the College of Physicians and Surgeons, but again accepted the chair of Professor of Chemistry in that institution in 1880. He was also elected Professor of Chemistry in the Baltimore College of Dental Surgery in 1888. His interest in these various schools and in the University of Maryland, either as Professor of Analytical Chemistry, Professor of Chemistry, or Emeritus Professor of Chemistry continued until his death, July 19, 1916.

His "Manual of Chemistry" was first published in 1884, and by 1912, ten editions had been printed. It is interesting to note that the color charts in the first editions of the text were drawn and colored by hand by Mrs. Simon. Dr. Simon was the recipient of many honors, including an honorary M.D. degree. As a doctor of medicine he enjoyed writing prescriptions for cough medicines and for iron-quinine-and-strychnine for his own use. He was President of the Maryland Pharmaceutical Association in 1887-88. He was one of the three charter members of the American Chemical Society of Maryland. He was very much interested in the progress of science and did much to popularize it in Baltimore.

In 1898 he gave a popular lecture on liquid air, including demonstrations with the "novel fluid." In 1907, when Lumiere announced that he could produce colors by means of photography, Dr. Simon immediately became interested and was among the earliest, if not the first, to take color photographs in the United States. His first was that of a rainbow, which clearly showed the yellow, green and blue hues. He gave illustrated lectures on color photography, including one before the

convention of the American Chemical Society held in Baltimore in December, 1908.

The School of Pharmacy of the University of Maryland has endowed a fund in honor of Dr. Simon, the income from which provides a medal which is awarded annually to the graduate showing the greatest proficiency in practical and analytical chemistry. This fund perpetuates the prize which was first donated by Dr. Simon in 1882 and continued during his connection with the Maryland College of Pharmacy.

In 1895 Dr. Daniel Base assumed charge of the chemical laboratory of the Maryland College of Pharmacy. In the catalogue of that date one reads that the laboratory will be open for "individual work, at any hour of the day" under the direction of Dr. Base. Dr. Base succeeded Dr. Simon as Professor of Chemistry when the latter resigned in 1902. Dr. H. A. B. Dunning was Associate Professor of Chemistry from 1901 to 1915. In 1919 the laboratories were placed in charge of Dr. H. E. Wich. Dr. Base resigned in 1920 to become chief chemist of Hynson, Westcott & Dunning. Since that time the basic courses in chemistry have been conducted by the Chemistry Department of the College of Arts and Sciences. Dr. Glenn L. Jenkins was the first professor of Pharmaceutical Chemistry, serving from 1927-1936. Since that date the chair has been ably occupied by Dr. Walter H. Hartung.

In 1904 the Maryland College of Pharmacy became the Department of Pharmacy of the University of Maryland, which institution was founded in 1807. A brief mention of the men who occupied the chair of chemistry in the School of Medicine in that institution may be appropriate. John Shaw was the first professor of chemistry. Upon his death in 1809 he was succeeded by Elisha DeButts, one of the five physician-chemists who took a prominent part in supporting the first United States Pharmacopoeial Convention. In 1831 the chair was filled by Jules Timoleon Ducatel. He was the eldest son of Monsieur Edme. Ducatel, the Baltimore pharmacist heretofore mentioned. After graduating from St. Mary's College, he entered his father's pharmacy, but was later sent to Paris to complete his scientific studies. Professor Ducatel was an ardent and enthusiastic student of nature, always ready to impart his knowledge to others. He was foremost in all scientific enterprises, being one of the founders of the Maryland Academy of Science and Literature. William E. A. Aiken be-

came assistant to Professor Ducatel and filled the chair from 1836 to 1888. Dr. Robert Dorsey Coale was then appointed and remained professor until his death in 1915. In 1916 Dr. E. F. Kelly was Associate Professor of Chemistry. Dr. H. Boyd Wylie became Professor of Physiological Chemistry in 1919.

The Maryland Agricultural College was organized at College Park, Maryland, in 1859. This was the nucleus of the College Park Schools which were merged with the professional schools in Baltimore in 1920 to form the present State University. At that time the Pharmacy Department became the School of Pharmacy of the University of Maryland.

The First Courses In Pharmacy*

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It is not an easy task to get at the beginning of anything. To attempt to ferret out the beginnings of organized or class room instruction in pharmacy leads to questioning. We are, however, reasonably certain of some things bearing upon the problem. One of these is that the Philadelphia College of Pharmacy was started in 1821 as an association of apothecaries and as a teaching institution.⁽¹⁾ The Massachusetts College of Pharmacy was organized in 1823⁽²⁾ but never became a teaching institution until 1867.⁽¹⁶⁾ The College of Pharmacy of the City of New York was established in 1829, and in June of that year the board of trustees elected two professors, one of chemistry and one of materia medica and pharmacy.⁽³⁾ Thus we see that in these early days the subject of pharmacy was accorded recognition, not as a separate course, but as a part of materia medica.

It is not my purpose to project this discussion beyond American borders but it would seem proper to recall that the Pharmaceutical Society of Great Britain established a chair of pharmacy in 1841 and appointed Theophilus Redwood as the lecturer.⁽⁴⁾ In 1846 the Philadelphia College of Pharmacy appointed William Procter, Jr. as the professor of phar-

*Read before the Conference of Teachers of Pharmacy, at Atlanta, 1939.

macy.⁽⁵⁾ These two appointments gave recognition to the importance of pharmacy as a subject and acknowledged the need for better and more systematic instruction in it.

Why Professors of Pharmacy?

The Philadelphia College of Pharmacy had been a teaching institution for twenty-five years before it saw fit to appoint a lecturer upon the subject of pharmacy. There had been lecturers upon chemistry and materia medica all these years. Any class room mention of pharmacy was left to the whims of the lecturer in materia medica.

There were reasons for this condition. First of all the colleges of pharmacy were almost entirely dependent upon the medical profession for teachers. Doctors, although many of them owned drug stores, were less well trained in pharmacy than in chemistry and materia medica. The apothecaries lacked even the training in chemistry and materia medica of the physicians. They had learned what they knew about drugs and medicines by serving as apprentices. Their knowledge of pharmacy was dependent upon the wisdom and kindness of their preceptors, many of whom had been very poorly trained.

These three colleges of pharmacy, and several others founded later, were really groups of apothecaries who had banded themselves together in the interests of their profession. In so organizing they set themselves up as professional groups independent of the medical men. In every association there were those who were anxious to promote the welfare of pharmacy. They gradually came to recognize the fact that much of the science and art of pharmacy was not being advanced by the apprenticeship system for reasons already given. It was therefore concluded that apothecary apprentices could be helped quite as much by lectures in pharmacy as in chemistry and materia medica. Then, as now, the lecturers in chemistry and materia medica could not be expected to discuss the problems and techniques of pharmacy as well as one trained in the subject.

In recommending the appointment of a lecturer in pharmacy, the committee of nine appointed by the Philadelphia College of Pharmacy to study the situation and bring in recommendations stated, among other things, ". . . hence we find that Pharmacy, as at present taught by the Professor of Materia Medica, is limited to cursory notice of the more promi-

nent preparations of drugs, introduced as occasion offers in the course of his lectures."⁽⁵⁾

In an announcement of the lectures on pharmacy Procter⁽⁶⁾ set forth the outline of the course including the fees for matriculation and the diploma. It is to his credit to say that the subjects which he offered for discussion were very much like those which we present in a beginning course in pharmacy today. He lectured three evenings each week beginning the third week in October and continuing until the end of March. This time would be comparable to about one semester's work of four lectures a week. As a beginning, his course of systematic lectures extending over a period of twenty weeks was a great advance over none at all.

Procter's Professional Ideals

The choice of Procter as America's first professor of pharmacy was a wise one. He was a pharmacist by education and experience. His professional idealism is set forth in his introductory lecture to the course in practical pharmacy in 1847. Referring to pharmacy he said, "Its skillful conduction calls for an extensive range of knowledge, and few vocations tend more to excite scientific investigation and mental activity.

"The ground work of practical pharmacy is expert manipulation; hence the first object of this department is an acquaintance with the elementary operations required by the apothecary.

"Prescribing in any form, is foreign to our profession, and should be avoided. . . .

"The only clear course that remains for us, is to enlighten public opinion through the agency of properly educated and skillful pharmacutists, disseminated through the country, who will take a firm stand in upholding their profession from the polluting influence of empiricism whilst they ennoble it by the cultivation of science."⁽⁷⁾

These few excerpts give us an insight into the ideals for pharmacy which this first professor of pharmacy had and they are scarcely excelled by any of us today. The subject of pharmacy had a good beginning at the hands of Procter. Unfortunately his good beginning with the pharmacy course at Philadelphia continued in the same vein for more than twenty years without much change or advancement.

It is stated that the Maryland College of Pharmacy had a

distinct chair of "Theory and Practice of Pharmacy" from its beginning in 1844, but little is known about it except that Israel Grahame, pharmacist became the pharmacy lecturer at Maryland in 1856. LaWall⁽⁹⁾ says, "The first individuals to hold separate professorships in pharmacy were Professor George W. Andrews and Professor Thomas Mackenzie in Baltimore in 1841 and Professor William Procter, Jr. in Philadelphia in 1846." Other pharmacists who became lecturers in pharmacy were John M. Maisch at the New York College of Pharmacy 1861, and James O'Gallagher at the St. Louis College of Pharmacy in 1864. Except for these three men the teaching in the colleges of pharmacy up to 1866 and even later was done mostly by medical men. Between 1821 and 1866 nine colleges of pharmacy had come into being and professorships in pharmacy established in but few of them.

The American Pharmaceutical Association was organized to promote the welfare of the profession of pharmacy but according to Parrish too little progress had been made. At the meeting of the Association in 1866, he said, "Fifteen years have passed since the first convention of Pharmacutists in New York, and it appears to me that we ought to notice a much greater improvement in or extension of pharmaceutical education than has occurred. During this period the extension of these facilities for education has been very slight."⁽⁸⁾ He pointed out that the apprentices were not availing themselves of the instruction that was being offered in the colleges of pharmacy.

The Turning Point in Pharmaceutical Education

Prior to 1868 nine colleges or departments of pharmacy had been organized. Only a few of them had done much as teaching institutions. The teaching was almost wholly didactic. Laboratory instruction was not offered in pharmacy for the reason that the techniques of the profession were supposed to be learned in drug stores under experienced apothecaries. At the same time it was acknowledged that many of these were very poorly trained. The demand and opportunity for pharmacists in a rapidly developing country far exceeded the supply of well-trained and educated practitioners. The need for better and more specific training was urgent.

To meet this need the University of Michigan offered a course in pharmacy in 1868 with laboratory instruction in pharmacy and applied chemistry. The course is described in the University of Michigan catalog for 1868-9, page 56, under the Department of Science, Literature, and the Arts. At the end of the first year 1869, twenty-three were graduated with the degree of Pharmaceutical Chemist.

It was suggested in the catalog that it would require one and a half to two years to complete the course and that a satisfactory thesis would be one of the requirements for graduation.

This step on the part of the University of Michigan created three innovations in pharmaceutical education. One was that the "University", not being an organization of apothecaries, was offering instruction in pharmacy. The second was that it granted the degree of Pharmaceutical Chemist. The third was that apprenticeship experience was not required for admission to the course in pharmacy or for graduation. These three things naturally were cause for a great deal of comment among the leaders in American pharmacy. Nevertheless, the school was soon well established, its course strengthened and lengthened into two full years of regular college instruction.

Details of the course, as described in the catalogs of the University of Michigan from 1868 to 1880, need not be elaborated except to say that it was a good one for its day. The attendance gradually increased and in 1879-80, eighty-one students were enrolled, one being listed as a graduate.

The New Degree in Pharmacy

In 1869 Prescott, head of the newly organized course of pharmacy at the University of Michigan, addressed a letter to the American Journal of Pharmacy in which he enclosed a list of names of the twenty-three members of the first class to graduate in pharmacy at Michigan. Each name was accompanied with a thesis title. The subjects in which the class had received laboratory and didactic instruction were also enumerated. It was stated that the degree of Pharmaceutical Chemist had been granted to this class.

The communication was printed with editorial comment to the effect that the words "Pharmaceutical Chemist" had no meaning in the country beyond the other terms used to express the business or profession of a pharmacist. It was

further stated, "If the Michigan students are apothecaries who go from the shop to get their laboratory education it is all well, but if any one without other training in pharmacy than is obtainable at the University School is pronounced a qualified apothecary, it should be known and appreciated. An apothecary without shop experience is like a medical graduate without hospital or other practice. They are both of doubtful reliability."⁽¹⁰⁾

In replying to this comment Prescott⁽¹¹⁾ said, "No requirement of training in the shop is made, either for admission to the course or for graduation. Our school believes it to be quite as well for the young pharmacist, better for his employer and far better for the public, that scientific preparation for the drug business should precede experience in it. . . . The course now established here embraces training, under supervision at the prescription stand,—actual work, certainly as well deserving the credit of responsible experience for the pharmaceutical student as hospital practice does for the medical student. This training is valued as a means of binding principle to practice, but it is not allowed to take the place of more fundamental education It is our endeavor to educate scientific experts,—competent for drug assays, familiar with the toxical properties of medicines, habituated to accuracy, capable of professional truthfulness and earnest to maintain it,—not mere ready tradesmen in pharmacy, but such as shall be worthy of the often abused designation of pharmaceutical chemist." He closed by saying, "We labor toward placing pharmacy in scientific hands: who welcomes our efforts?"

The new philosophy of pharmaceutical education in force at the University of Michigan constituted a distinct challenge to the ways of the old line colleges. How was this to be met? One needs but to read the minutes of the "Convention Relative to Pharmaceutical Education" held in Baltimore, September 14 and 15, 1870.⁽¹²⁾ After deliberating upon the problems of pharmaceutical education several resolutions were presented and passed, most of which were not in agreement with the Michigan idea. The following may be of interest. "Mr. Sargent moved that a term of service of four years in a dispensing drug store be recommended to be exacted from students in pharmacy before coming up for final examination. Carried."

"Resolved, That we recommend that apprentices shall not

be taken under sixteen years of age, and shall be twenty-one years of age before being entitled to receive their diplomas. Carried." Under requirements for admission the University of Michigan catalog for 1868-9, page 46, reads, "All candidates for admission to this department must be at least fourteen years of age, and must present satisfactory evidence of good moral character."

The convention admitted the value of practical instruction in chemistry in the following resolution: "Resolved, That branches to be taught in colleges of pharmacy should at least include lectures on general chemistry, elementary botany, materia medica and the general facts and principles of pharmacy, and, when practicable, opportunity should also be provided for instruction in practical and analytical chemistry. Carried."

It was also voted, "That diplomas should not be recognized as evidence of sufficient qualification, unless based on four years' practical service in a dispensing shop."

This conference was the first attempt of pharmaceutical educators to organize in the interest of united action with respect to the establishment of educational standards for pharmacy. It was at a time when the colleges of pharmacy were supreme in pharmaceutical matters. There were no state laws to be obeyed or state board of pharmacy rulings to comply with.

That this conference was not an all inclusive one may be concluded from the fact that A. B. Prescott was refused recognition as a delegate from the School of Pharmacy of the University of Michigan at the nineteenth annual meeting of the American Pharmaceutical Association, 1871. A committee of ten was appointed to consider his case and later reported as follows, "The committee of the credentials of the delegate from the University of Michigan, having considered the subject in its various relations, are united in the conclusions that the University is not, within the proper meaning of our Constitution and By-laws, a College of Pharmacy: it being neither an organization controlled by pharmacists, nor an institution of learning which, by its rules and requirements, insures to its graduates the proper practical training, to place them on a par with the graduates of the several colleges of pharmacy represented in this Association. We therefore recommend that the credentials of the delegate from the University of

Michigan, be returned to him with a copy of this report."⁽¹³⁾

Although Prescott was not received as a delegate from the school which he represented he was permitted to attend the annual sessions by right of membership. He had a great deal to say about the conditions in pharmacy in a paper entitled, "Pharmaceutical Education."⁽¹⁴⁾ He said, "The conditions of pharmaceutical apprenticeship in this country constitute a subject of regret to all thoughtful observers." He pointed out that too many apprentices were being trained under pharmacists who knew but little more science than the apprentice. Also that apprentices were required to do so many things which they did not understand". Quoting further, "All the schools of pharmacy which have been recognized as such by this Association require the completion of apprenticeship before granting a college diploma. In so doing, these colleges, in addition to their function as educators, perform a useful office in the discrimination and indorsement of certificates of apprenticeship, and in regulation of pharmacy. But, the writer submits, it is greatly to be regretted that no one of the colleges of pharmacy which this Association represents has ever required college laboratory training either before apprenticeship or before college graduation."

The Teaching of Practical Pharmacy Grows

Up to this time it had been the policy of the colleges of pharmacy to grant diplomas to those matriculants who had served a four year apprenticeship and had attended certain of the lecture courses and passed the examination. It was, at the same time, well known that many pharmacists under whom the matriculants worked were mere tyros quite incapable of giving instruction. This condition doubtless hastened the crystalization of sentiment in favor of the idea of giving laboratory instruction in pharmacy.

In 1871 John M. Maisch opened a Practical School in Philadelphia. Courses in practical pharmacy and analytical chemistry were offered. The pharmacy course included the practical details of such processes as drying, powdering, sifting, percolation, distillation and the preparation of many extemporaneous galenicals.⁽¹⁵⁾ Inasmuch as only eight students took the course, it would seem that it was optional and not required.

In the catalogue of the Philadelphia College of Pharmacy

for 1879, a course in "Pharmaceutical Manipulation" is described. It was designed for the purpose of furnishing students who had not had the best opportunities for obtaining an insight into the principles of the art of pharmacy to be properly instructed. This course was instituted at a meeting of the Board of Trustees in April, 1877. Two afternoons in the week were devoted to this branch, and were so arranged as to supplement the lectures of the regular course in pharmacy, which began in October. In 1881 a laboratory was erected and devoted exclusively to this branch of instruction.⁽¹⁶⁾

The New York College of Pharmacy

According to Ballard, pharmacy was separated from *materia medica* in 1864 and a separate lecturer appointed at the New York College of Pharmacy.⁽¹⁶⁾ Wimmer⁽¹⁸⁾ states that E. R. Squibb was appointed lecturer on pharmacy which position he held for two years and had to resign because of other duties. These lectures were offered twice a week in the evenings from October to March. In the catalog for 1873-74 under the heading "Laboratory practice in analytical and pharmaceutical chemistry" it is stated that "Students may enter for one, two, or more days a week. Instruction will be given in pharmaceutical and chemical manipulation." The catalog of the same school for 1874-75 gave notice of a summer course in pharmacy offered each Friday evening at 7:30, May 8 to August 21, "when practical instruction in Pharmaceutical Manipulations will be given. . . . Lectures will be entirely different from regular winter course."

That progress was being made is evidenced by the fact that attendance in the pharmaceutical laboratory became obligatory at the New York College according to the catalog announcements for 1883-84. Quoting from the catalog: "A new pharmaceutical laboratory will be opened about September 3, 1883. . . . The course of instruction will embrace the manufacture of one or more of each of the principal classes of preparations of the U.S.P."

"All students entering the college, on or after September 1, 1883 will be required to attend a 13 days' course in this laboratory. This obligation must be fulfilled during the senior year." Attendance beyond 13 days in this laboratory was

optional. The benefits of laboratory instruction were gradually increased. In 1892-93 laboratory instruction was increased to 25 days and hours extended from 3 to 4.⁽¹⁶⁾

The Maryland College of Pharmacy

The Maryland College of Pharmacy catalog for 1884-85 states that Charles Caspari, Jr., was given the additional title of "Director of Pharmaceutical Manipulations". The laboratory is described as having capacity for about 75 students. The course was optional but fully two-thirds of the seniors were in attendance due, perhaps, to the fact that a rigid examination in Practical Pharmacy was required for graduation. The laboratory was open two days a week from October 13 to January. In 1886-87 the course occupied two afternoons a week for four months. In May 1886, the Board of Trustees of the College decided to establish a Short Course of two afternoons per week during the months of October and November, to be devoted to Dispensing and Extemporaneous Pharmacy and obligatory for graduation.^{(16) (17)}

The Massachusetts College of Pharmacy

The Massachusetts College of Pharmacy was founded in 1823 as an organization of apothecaries. It did not become a teaching institution until 1867. In answer to an inquiry addressed to this institution Clara A. Robeson, assistant librarian, writes: "As to the first pharmacy lecture course given at our own college, the first catalog was issued for the session 1868-69, but the previous year an announcement had been sent out to the drug clerks nearby. An abstract of that announcement follows: "The Massachusetts College of Pharmacy proposes to inaugurate during the coming season a course of Lectures on Chemistry, Materia Medica, Botany and Pharmacy, and to offer the Apothecaries of New England an opportunity so long desired, to improve and perfect themselves in their profession, and ask their attention and cooperation with the plan. . . .

"The regular course of instruction will commence on Friday evening, December 13 (1867) at 7 o'clock and continue on every Tuesday and Friday evening from 7 to 9, until about the first of April as follows: . . .

"On Theory and Practice of Pharmacy, by George F. H. Markoe . . ." ⁽¹⁶⁾

Thus was inaugurated a series of lectures which continued, with very little change, until 1886-87 when an elective course in laboratory instruction was introduced under the direction of the "Department of Practical Laboratory Instruction in Pharmacy." The laboratory work was made compulsory in 1888-89.

As early as 1872-73 separate lectures were offered for the junior and senior classes. Through the nineties the staff was increased and two-day-a-week schedules were added along with other courses. ⁽¹⁹⁾

Purdue University School of Pharmacy

In the eighties several colleges of pharmacy put in their appearance, many of them as departments of state universities located in the middlewest. It is not possible in the time allotted to discuss them all but it might be interesting to bring to you a part of the catalog information about Purdue University School of Pharmacy founded in 1884. The "First Annual Announcement" ⁽²⁰⁾ reveals considerable history. Schools of pharmacy were the fashion in those days as indicated by the first paragraph of the announcement which reads as follows:

"The School of Pharmacy is established by the Trustees of Purdue University in response to the growing demand for a thorough practical and theoretical training in pharmacy and related branches.

"... when the public health is considered, correct pharmaceutical practice is a matter which concerns every citizen; yet no opportunity has yet been open in the State to gain a pharmaceutical education. Purdue University already has large and convenient laboratories for chemistry and botany, with all the necessary appliances and materials for instruction and for research. With the instruction in Pharmacy and Materia Medica now added, including both lectures and practical exercises in pharmaceutical manipulation, the student will find ample facilities for a thorough course of training, which will compare well with the opportunities offered in other schools of pharmacy.

"Until recently the usual School of Pharmacy in the United States consisted essentially of lecture courses on chemistry,

on pharmacy, and on materia medica and botany; about forty lectures being given by each of the three professors in a five months' course: but each student was required to have about four years' practical experience in a dispensing pharmacy before graduation. Under this system a large amount of practical experience was required, and but a limited amount of college training. . . .

"Purdue has tried to combine these two ideas to make a practical course, requiring more than the usual amount of laboratory work.

"The instruction will include a junior and a senior course of twenty weeks each, but the junior course only will be given in 1884-85.

"Women will be admitted on the same conditions as men."

It would take too long to describe the courses in detail. The laboratory is stressed and it is stated that, "the student's entire time will be occupied". This was a departure from the two or three day a week or evening course idea that was common and much advertised in those days.

Admission to the junior class was as follows: "Applicants having a good common school education, who present satisfactory certificates that they have had practical experience of twenty-four months in a dispensing pharmacy or a manufacturing pharmaceutical laboratory under the guidance of a reliable and competent pharmacist, will be admitted without examination."

In addition to this, those seeking admission to the senior class must have passed satisfactory examinations in all the studies of the junior course.

The requirements for graduation were clearly stated. "The degree of 'Graduate in Pharmacy' (Ph. G.) will be conferred upon each student not less than twenty-one years of age, who successfully completes the required course, presents a satisfactory thesis, and furnishes evidence of having had a practical experience of forty-two months in a dispensing pharmacy under the guidance of a competent and reputable preceptor; but the time spent in the School of Pharmacy may be included in this term of service. Besides the examinations on the lectures, an examination in practical pharmacy, proving the candidates familiarity with such details as are best learned behind the counter, will be required for graduation."

An analysis of this first announcement concerning the

School of Pharmacy at Purdue makes it clear that there was a growing demand for better trained pharmacists and that they had obligations in matters of public health.

Teaching Dispensing in the Laboratory

The idea of teaching the art and the techniques of pharmacy, first introduced by the University of Michigan in 1868, was slowly accepted by the colleges of pharmacy, first as optional and later as required work. According to Oldberg⁽²¹⁾ the "Dispensing Laboratory" was unknown until introduced by the Illinois College of Pharmacy in 1886. He says "From seven years' experience, I believe that students of pharmacy can be taught not only the general principles but also the actual manipulations of dispensing, more effectively in the Dispensing Laboratory than in any drug store, no matter how large, well equipped, busy, and well managed that store may be, and no matter how able and skilled its trained operators." This expresses a complete rejection of the old apprenticeship idea so dear to the hearts of our forefathers of pharmaceutical education. Perhaps it was a radical departure advocated for a purpose rather than as an educational principle. We understand that this school offered, at this time, two five months' terms, the junior and senior courses in one year. This arrangement made it necessary for the student to devote his "whole time to his studies, instead of dividing his time between drugstore employment and the college course."⁽²²⁾

In the Apothecary for 1893-94 there is a very interesting review of schools of pharmacy.⁽²³⁾ This review is attributed to the editor Oscar Oldberg and is well worth your reading. He analyzes the situation in twenty-two schools, seven of which he classes as university schools, and fifteen as local pharmaceutical association schools. Many other schools were omitted for lack of information.

He points out that many schools hold out a "full work" opportunity and get many students for that reason. The attention which the students received in college was not dependent, according to Oldberg, upon the number of teachers. At this time only four pharmacy schools required high school graduation for entrance to the course in pharmacy. They were those of the universities of Michigan, Northwestern, Vanderbilt and Kansas. Previous drug store experience was also not a requirement for entrance.

The hours in school varied greatly. The university schools expected their students to devote 30 to 40 hours a week to school work and 12 to 20 hours to study or book work. The association schools required 6 to 19 hours attendance weekly, the school hours per year ranging from 132 to 630.

In the university schools the total laboratory work required amounted to about 750 hours per year. In the Association schools the laboratory hours were from 60 to 375 hours a year and in one school no laboratory work was obligatory.

Until 1879 no school gave a term longer than 20 weeks. By 1894 five university schools offered two years of nine months each, one a three year course of nine months, one a four year course of nine months, and one a two year course of six months.

In 1907 Remington⁽²⁴⁾ wrote, that in 1857, three colleges of pharmacy were deemed sufficient for the needs of those who aspired to more education than was furnished by the apothecary shops. "There were no laboratories then and the exercises in the best colleges consisted of six lectures a week, delivered in three evenings, and but two courses of lectures before granting a diploma. The advanced students and the beginners listened to the same lectures, the only difference being that the privilege of being quizzed by the professor for fifteen minutes of the hour belonged to the advanced students alone." In 1907 eighty-six or more institutions were engaged in teaching pharmacy.

Much of interest has been omitted in this resume. In closing, may I suggest that inasmuch as pharmaceutical education in America has carried on for more than 118 years that someone should, by some means, be inspired or delegated to write its history properly documented. May I be so bold as to suggest first of all that each college of pharmacy set about to write its own history as a few of them have. All of us need to know more about the so-called "good old days" in American pharmacy.

References

1. First Century of the Philadelphia College of Pharmacy (1922).
2. Bulletin of the Massachusetts College of Pharmacy (Jan. 1938) p. 7.
3. Wimmer, C. P. The College of Pharmacy of the City of New York. A History (1929) p. 23.
4. The First Annual Meeting of the Pharmaceutical Society. *Pharm. J.* 1: 633-48 (1841).

5. Minutes of the Philadelphia College of Pharmacy. *Am. J. Pharm.* 18: 144 (1846).
6. Announcements of the Lectures for the Ensuing Season. *Am. J. Pharm.* 18: No. 3. Report of the Philadelphia College of Pharmacy p. 9 (1846).
7. Procter, Wm. Jr. Lecture, Introductory to the Course on Practical Pharmacy, *Am. J. Pharm.* 19: 241-57 (1847).
8. Parrish, E. Minutes of the Fourteenth Annual Meeting of the American Pharmaceutical Association. *Proc. Am. Pharm. Assoc.* 14: 39 (1866).
9. LaWall, C. H. Four Thousand Years of Pharmacy (1927) p. 490.
10. Prescott, A. B. Editor American J. of Pharmacy, *Am. J. Pharm.* 41: 472 (1869).
11. Prescott, A. B. Editor American J. of Pharmacy, *Am. J. Pharm.* 42: 85 (1870).
12. Minutes of the Convention of Delegates from Colleges and Societies of Pharmacy, Held in Baltimore on the 14th and 15th of September, Relative to Pharmaceutical Education, *Am. J. Pharm.* 42: 500 (1870).
13. Minutes of the Nineteenth Annual Meeting, *Proc. Am. Pharm. Assoc.* 19: 29, 47 (1871).
14. Prescott, A. B. Pharmaceutical Education, *Proc. Am. Pharm. Assoc.* 19: 425 (1871).
15. The Practical School and the Philadelphia College of Pharmacy *Am. J. Pharm.* 43: 186 (1871).
16. Robeson, Clara A. Private Communication, August 1 (1939).
17. Maryland College of Pharmacy, Catalog for 1886, p. 14.
18. Wimmer, C. P. The College of Pharmacy of the City of New York. A History (1929) p. 62.
19. Robeson, Clara A. Private Communication, July 15 (1939).
20. First Annual Announcement, Purdue University School of Pharmacy (1884-85).
21. Oldberg, O. The Dispensing Laboratory. *The Apothecary* pp. 74-77 (1893-94).
22. Advertisements, Illinois College of Pharmacy. *The Apothecary* 2: No. 2, 93 (1892).
23. The American Pharmaceutical Schools and Their Facilities, Courses and Requirements in 1893-94. *The Apothecary* pp. 145-170 (1893-94).
24. Remington, J. P. Pharmacy During the Last Fifty Years. *Druggists' Circular* 51: 19 (1907).

The Significance of Honor Societies¹

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More than at any previous time in the world's history, this is an age of organization. They are of all sorts, some good, some bad, or if not bad altogether, useless.

Group organization dates from very early times, how early I do not know, though we are told that there were apothecaries' guilds in the days of Nehemiah, which was about 450 B. C. However authentic that may be, it is quite certain that man had not progressed very far before he realized the advantage of joining with his fellows for protection against his enemies. The idea of uniting in order to be of service in some way developed later. The religious societies like the Hospitallers in Palestine in the eleventh century were perhaps the earliest of this type. After them have come political, social, literary and business organizations. The range is enormous, varying from all sorts of labor unions to the learned societies—there is something for everybody, from the hod carrier to the ethical culture enthusiast.

Scientific and learned societies which have some things in common with honorary fraternities began to appear in the seventeenth century. In literature, perhaps, the French Academy takes precedence. It was founded in 1635 by Cardinal Richelieu. There were only forty members and they were called the forty immortals. Vacancies caused by death were filled by ballot. Then came the Royal Society of Great Britain in 1660. It too, I believe, was made up of forty members.

America was not slow in this direction. In 1743, Benjamin Franklin founded the first such society in America, known as the American Philosophical Society. In 1780, the American Academy of Boston came into existence, its particular realm being natural science. These various societies and academies held meetings where the members discussed the most recent contribution to knowledge in their particular field. These organizations have increased until there are more than 20,000 now.

¹Read before Delta Chapter of Rho Chi at a dinner for new members, 1939, State University of Iowa. Published in this Journal at the request of the Editor.

Every organization, I care not what it may be, must have a purpose, and must be achieving it in some degree or else its existence is not justified. By way of illustration, take the hundred or so patriotic societies. They may all be doing effective service, those with which I am familiar are. I do not choose them because they are open to criticism.

There is the Society of the Cincinnati organized in 1783, with the idea of preserving the friendships formed during the trying days of the Revolutionary War; the Descendants of the Signers, who can trace ancestry to some one who signed the Declaration of Independence; the Colonial Dames; the Daughters of the American Revolution, and all the others. If these societies did not all have a program that they are trying to carry out, they would be useless. The man or woman who becomes a member of any such society because of being a lineal descendant of some one who served his country in some time of trial, but has no interest in the work of Americanization or education that these societies are doing, has no right to be proud of his membership.

Perhaps this all seems a long way from Rho Chi, but to me there is an analogy even if I am not able to make it quite clear.

The first college fraternity was Phi Beta Kappa organized in 1776 at the College of William and Mary in Virginia. Its objects were social and literary. Not until 1831 did it become honorary. Sigma Xi was organized in 1886 at Cornell University. Since that first fraternity was established, others and still others, have been born. Every department of college work has several, and nearly all have an honorary one.

To me, the significance of an honorary society is four-fold. First, it is a means of recognizing superior scholarship; second, it establishes fraternal relations among the scholarly members of all colleges represented; third, it is an incentive to excel for the sake of obtaining the honor; fourth, it promotes the science and the art of pharmacy.

Let us take these objects separately. A means of recognizing superior scholarship: since the days of chivalry when knighthood was bestowed upon a candidate who had submitted to the rigid training demanded, had become skilled in the management of his horse and in the use of his lance, and finally had distinguished himself in some service—the world has ever sought to recognize merit in some way, has tried to give honor to the individual who surpasses his fellows. So,

membership in Rho Chi is a recognition of ability as a student and it is worth something to have that honor.

The establishment of fraternal relations among the intellectual leaders of the various colleges of pharmacy: being able to wear a Rho Chi pin, to be known among your classmates as belonging to a select group, will be a short-lived honor if you stop there. Of course, in years to come, you will take pride in exhibiting the emblem to your grandchildren with the information that you were among the upper ranks of your class, but that isn't enough either.

If you do not make an effort to know Rho Chi men and women of other chapters, you are not getting the full value. One of the great satisfactions of membership in your State Pharmaceutical Association and the American Pharmaceutical Association, is the opportunity to meet and know other people who are interested in the same sort of work.

This may sound like propaganda, and I do not deny that I am a booster for both, but it illustrates my point also. If you do not all become active members of your State Association, and one or more national ones, you have not only been derelict in your duty, but you are losing things of enormous value to you. By virtue of renewing your certificate of registration annually, you are a member of the Iowa Association, but if you do not attend the meetings and do what you can for the advancement of the business and professional interests of pharmacy, you are not measuring up to what Rho Chi expects of you.

An incentive to scholarship: I am very sure that the possibility of attaining the rank that will permit election to Rho Chi will do more than any other one thing to spur students on to hard study. There are always some who study from sheer love of it, others who are naturally ambitious, and there are always some with native ability equal to any, but who in high school have fallen into indolent habits. In order to win some coveted honor, some of these will acquire habits of industry. The society will do much to encourage real work.

The prize which is given to the freshman attaining the highest standing encourages scholarship, rewards the student, and focuses attention on Rho Chi early in a student's college life.

The advancement of pharmacy: indirectly the carrying out of the three purposes will be advancing the science and

the art of pharmacy, but the time will come when the society will be big and strong nationally, and the Grand Chapter will be able to establish scholarships or undertake other work national in scope. Unless all of these things shall be kept in mind, we shall not be grasping the full significance of the society.

If we think only of obtaining the grades that will elect us to membership, the honor will be an empty one. Scholarship is not an end in itself, it is a means to an end. That end is life—the ability to serve and the ability to enjoy. Some one has said that life is not a spurt but a long, steady climb.

So with your membership in Rho Chi. You may sprint a few years and get in, but if you do not do more, you are quitters. You have given promise of future achievement and that future achievement is of far more importance than the honor won now. Each of us everywhere in life is on trial before a tribunal of our contemporaries and the next generation. We may not always realize it, but it is true nevertheless. The mediocre individual goes his way with little notice, but the honor men and women are closely watched.

We, your teachers and your fellow students, will be watching through the years to come, to see whether you measure up to the promise of achievement in your present work, whether you become the leaders you ought to be. You have already demonstrated that you have the heads, but you have yet to show that you have the other qualities necessary to develop your powers.

There is something besides scholarship that should not be lost sight of whenever new members are elected. It has been truthfully said that a man may soar to the sky intellectually, but wallow in the mire morally. Rho Chi wants no such member if by any chance any such should be eligible. Wallowing in the mire will bring to an untimely end the intellectual flights. History is not lacking in examples, Robert Burns, Edgar Allen Poe, Jack London, for instance.

Often when I think of empty honors, I am reminded of another historic personage, and a little bit of English prose about the emptiness of honors if in after life, circumstances are too much for us. You all know who Benedict Arnold was. Whatever else you may forget of American history, you are not likely to forget that he was a traitor to his country. I wonder if you all know that he was a successful apothecary in

pre-Revolutionary days? It was not of that I wished to speak, however. As you know, he attained many military honors and was distinguished for bravery and strategical knowledge, but there could have been no satisfaction in those memories in after years. This is the quotation:

"In the square shaft of the battle monument commemorating the victory of Saratoga, are four arches. Three of these contain heroic statues of the victorious generals. Horatio Gates, unworthy though he was, stands in one; the gallant Schuyler and the intrepid Morgan honor the other two. But where is he whose valor turned back the advancing St. Leger, whose military genius won the day? A vacant niche—empty as England's rewards, void as his own life—this is America's way of honoring Arnold in his dishonor. Nothing could speak more strongly of the consummate tragedy of a mighty career, blasted almost at its beginning, than that pitifully empty niche."

So if you are men and women of character as well as scholarship to begin with, if you develop both in character and professionally, if as a society you encourage scholarship, you will have grasped the full significance of the honor that has come to you.

What are the Fraternities Doing?—A Reply¹

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In the January 1939 issue of this Journal, Professor Edwin Durand of the New Jersey College of Pharmacy presented a pertinent and interesting editorial entitled "What Are the Fraternities Doing?" He questioned the value of these organizations as they exist today, and also made some constructive suggestions concerning the ideal objectives that the college fraternity should have. The more important points he discussed are as follows:

1. That the fraternities are "turning more and more into a social group of one kind or another," and that "gradually

¹This article was submitted to Dr. Heber W. Youngken, Grand Regent of Kappa Psi, before publication and it has his approval. Professor Reed is Grand President of Phi Delta Chi.—Editor.

the various reasons for the original beginnings of the college fraternities have been either discarded or disregarded."

2. That aside from social activities "a college fraternity should have some definite reason for being," that "it should be a force in the undergraduate life of the college," and that "it should supplement the aims of the institution in the development of an educational program."

3. That "the meetings should be so conducted that they are instructive, constructive, and creative. They should call forth the abilities of the students and enable these abilities to develop further."

4. "The original college fraternities were all formed primarily to foster scholarship and character. The development of scholarship and the inculcation of the traits of character in the group should always be the aim of the fraternity, and yet how often we see no emphasis placed on either."

5. He emphasizes that three fundamental points should be considered in studying what the pharmaceutical fraternities could do:

(a) That the meetings should be conducted according to parliamentary law and established rules of order. Also that part of the meetings should be given over to talks or papers on pharmacy, debates, etc.

(b) Critical selection of candidates based on scholarship and character.

(c) Appointment of a scholarship committee to work with the faculty to improve the scholarship of the various groups and of the college at large.

Professor Durand's questions and comments call for a reply. It is logical that such a reply should come from the executives of the national pharmaceutical fraternities. As Grand President of Phi Delta Chi I believe it to be my duty to answer this important question.

The national presidents of Phi Delta Chi and Kappa Psi both happen to be located at the same institution, namely, the Massachusetts College of Pharmacy. A consideration of what the respective chapters of these two organizations are doing at this College should reveal whether or not the major pharmaceutical fraternities are worthy of their existence. The work that these two chapters are doing is under the leadership of the respective heads of the two organizations;

it is here that we should expect to find the ideals and objectives of a pharmaceutical fraternity properly exemplified.

Professor Durand emphasizes the matter of scholarship. I quite agree with him. No student can be pledged or initiated into a fraternity at the Massachusetts College of Pharmacy unless he has an average of over 75% in all subjects for the first semester. We have found this ruling of great benefit in many ways; it has resulted in a great strengthening of both organizations.

The fraternities here have endeavored to increase the scholarship of their new members in several ways. Each fraternity here has built up a scholarship fund and pays one or more scholarships each year. Kappa Psi pays one scholarship of fifty dollars each year to the Kappa Psi man in the senior class with the highest scholastic record for the first three years of his curriculum. Phi Delta Chi does the same and also awards a second scholarship of fifty dollars to the Phi Delta Chi man in the junior class with the highest scholarship record for the first two years of his curriculum. The funds are increased each year by interest payments on the fund, active and graduate chapter contributions, as well as individual alumni contributions. The Dean of the College is Trustee for both funds. The progress of these funds may be illustrated by the growth of the Phi Delta Chi Scholarship Fund; this fund was started in 1933 and at the present time the fund has reached a total of \$1700.00. The scholarship fund insures the continuance of these scholarships in the future and eventually interest payments alone will pay them. It is worthwhile to note that the building up of this fund has created tremendous interest among our alumni, possibly more than any other project.

Another scholarship aid available to Phi Delta Chi men is the free use of microscopes. Six modern biological microscopes are available at all times. They may be borrowed for home use for a period not exceeding one week at a time.

To further stimulate scholarship quite generally in both groups, Eta Chapter of Phi Delta Chi and Mu Chapter of Kappa Psi pay all initiation fees and cost of membership certificate and key for members eligible and invited to join Rho Chi Honorary Society.

Both fraternity chapters here hold regular meetings of their active and alumni chapters. Parliamentary procedure

and accepted rules of order are followed. Speakers present interesting talks to the members at frequent intervals, usually on topics of a scientific nature.

By means of a mimeographed bulletin published several times a year the active chapter keeps in touch with its alumni members. The "smokers" are noted for the large number of alumni who turn out.

An interesting and progressive development in past years has been the "Interfraternity Night." Phi Delta Chi and Kappa Psi have had their active and alumni members meet in common for the evening. The program includes prominent speakers, a buffet supper, and promotional work for the profession of Pharmacy and our Alma Mater. These meetings have served to focus the attention of both groups of fraternity men on the fact that the greatest fraternity they belong to is our Alma Mater and that no individual fraternity can be greater than the institution which sponsors it.

As to the character of the men in our active chapters. It is my belief that we are getting just as good men as the fraternities obtained in the past. It is my belief also that we are doing even more than in the past to develop the character of these young men who will represent Pharmacy in the future.

One must be frank and admit that although pharmaceutical fraternities are professional fraternities, they have through the years of their development been concerned with social activities. This is not necessarily detrimental. In many ways it has been a necessity. Our fraternity chapters at the Massachusetts College of Pharmacy do have a rather extensive social program which has been of great benefit in developing a spirit of brotherhood so essential to any organization of this type. However, a happy medium between the professional and social aspects has, in my opinion, been largely responsible for the continued success of these chapters of our major pharmaceutical fraternities.

Several eastern chapters of Phi Delta Chi have, during each of the past three years, held interchapter meetings. For instance, the entire membership of Eta Chapter visited Theta Chapter in Albany in 1937, and Gamma Chapter at Columbia in 1938. These meetings emphasized the national phases of the organization and promoted an exchange of ideas and programs. Our students also had the opportunity of visiting several colleges of pharmacy on the trip, thus learning more about Pharmacy from the educational standpoint.

The leaders of these two major pharmaceutical fraternities endeavored to show the way for the other chapters in their respective organizations. We hope that they may benefit from these ideas. Perhaps one of our greatest difficulties at the present time is the lack of interest on the part of faculty members of some of our colleges. It is a fact that when we have the interest of the faculty usually we have good chapters. We earnestly trust that the various faculties will cooperate.

It is my hope that these remarks will answer Professor Durand's questions and that he and others may realize that the leaders of our pharmaceutical fraternities recognize their obligation to our colleges, and further that they stand ready to do all in their power to make these fraternity chapters a most valued asset of every school of pharmacy in the country.

The Function of the Teacher in the Training of Students for Manufacturing and Retail Pharmacy¹

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Students enter pharmacy schools for various reasons. In some instances they are following in the footsteps of their parents. In other cases they have worked in a drug store and have decided they would like to follow pharmacy as a vocation. In either case a pharmaceutical education is a necessity.

Pharmacy schools provide systematic instruction in such subjects as are deemed essential in the education of a pharmacist. Their primary aim is to prepare matriculants for the intelligent practice of dispensing pharmacy. A few also offer the facilities for the attainment of proficiency in the practice of the other branches of the profession and in pharmaceutical research.

All students are not suited for the same thing. Some have decided when they enter to follow retail pharmacy, while others prefer other fields of pharmaceutical endeavor. After

¹Read before the Conference of Teachers of Pharmacy at the 1939 Atlanta meeting.

the student has taken the basic courses in pharmacy, the teacher should encourage him to prepare for the field in which he is best suited. Regardless of the branch of pharmacy preferred by the student, the instructor will soon find that his work requires a great deal more effort and time than the actual working day. This is particularly true in the case of a teacher of pharmacy. Actual class time is the small part of the day's work, as there are papers to be graded, lectures to be prepared and last but not least, time for consultation with the individual student. This last type of work is very important if the individual student is to be guided into the field for which he is best suited.

A good teacher must possess a great deal more than the degrees he has received during his undergraduate or graduate work. Those who have worked hard to obtain their degrees and decide to coast along for a few years soon get into the habit of coasting and in most instances fail to accomplish anything worthwhile after graduation. As a part of his training a teacher should have some knowledge of manufacturing pharmacy and the problems connected with the operation of a retail store.

Since all of us have our own views on how to present the various courses in pharmacy, I am going to discuss a few practical suggestions which may give food for thought.

The work in the majority of subjects pertaining to pharmacy is presented to the student during lecture, recitation, and laboratory periods. The lecture hours are set aside for the instructor to present to the students the fundamental facts pertaining to the subject. The recitation period is included in the course so that the teacher can ask questions and find out how well the students have grasped the material presented in the lecture or the laboratory. This period is not set aside for the students to quizz the instructor thereby causing him to utilize the majority of the time, relieving the student of the work he should be doing. The laboratory period gives the student an opportunity to use his hands and brain and to put into practice the information presented to him during the lecture. The technique of the various operations should be presented, for the most part, either during the lecture or, if time is limited, it should be mimeographed and distributed beforehand so the student will have time to do the work assigned. The professor should not be required to spend the

entire time in the laboratory with the students, yet he should be in the laboratory enough to see that the assistants and students are carrying on their work as it should be.

The average recent graduate who has had no teaching experience, is not qualified to run a laboratory course alone. The problem of teaching is a bit different than taking work to obtain a degree. Although he may have been an excellent student while taking the course, he usually finds out how little he actually knows when he begins to answer the students' questions. With such an assistant, the professor in charge, by necessity, conducts a get together meeting once a week to discuss the material to be covered during that week. To insure perfect control, the assistant should be assigned certain duties and given the authority over the students he has under him. In case the assistant has a dispute with one of the students, I feel that it is best to let them straighten it out between themselves. Sometimes it is necessary to give the assistant some advice as to the best way to handle a situation, and to prevent it from recurring. The one thing I will not stand for is for an assistant to give a student the wrong information just because he is afraid to be honest. He should say, "I do not know, but I will look it up for you". With a little experience it is easy to handle such a case by asking the student to consult the reference books contained in the laboratory and then if he cannot find it to come back for an explanation. In the meantime, if the assistant does not know the answer, he has an opportunity to obtain the information ahead of the student. This simple solution serves a two-fold purpose. It relieves the assistant of the embarrassment of saying, "I do not know", and the student learns to obtain the information for himself as he will have to do when he goes out into the world.

The student is in the laboratory to learn the correct method of performing the task assigned to him. Those in charge of the laboratory should be able to perform the experiment, otherwise they usually have difficulty in obtaining the confidence of the student. For the most part, it is the attention paid to the little things that make the lasting impression on the student. An instructor that merely looks at the finished product and questions the student in reference to the correct method of filling a prescription, has only half completed the task assigned to him.

If we, as teachers of pharmacy, expect to perform our duty toward the retail and manufacturing fields, we have a great deal more to think about than just imparting a prescribed amount of knowledge to the student. It is our duty to mould habits while in the laboratory so these habits will be a natural part of the life he is to follow in his chosen field.

What should be required of students while attending classes in dispensing pharmacy? A great many teachers insist that the student wear a white or a gray coat. This is a good practice if the coat is kept clean, but it is not enough. He should be required to be clean shaven, have his hair cut, wear a clean shirt with a neatly tied necktie, have his pants pressed, shoes shined and his hands and finger nails clean. If he develops such habits in school he will do a lot of thinking about his personal appearance when he contacts the general public.

The same general principle applies to the condition of his laboratory desk, accuracy with which he weighs or measures the various ingredients in filling a prescription, the general appearance of the finished product, including the label and the wrapping. In most instances it is easy to teach the correct methods for certain operations but it is very difficult task to break a bad habit.

For the most part we are inclined to take too much for granted and expect students to be well versed in many subjects. When they are graduated from our schools they are supposed to be ready to take their places in the community life. Many of them, however, are misfits. They do not know how to integrate their activities with those of other people. They need to know many things that are not taught in the professional curriculum. In many schools of pharmacy the social life of the student is neglected. While supervising his professional education, we must not fail to help him realize his responsibilities to the people with whom he is to live as regards general culture and good citizenship. The pharmacist, like most professional men, is not judged by the laymen by the way he compounds a prescription alone, but also by the way he lives. Therefore if he is taught while in school to be neat, accurate, honest, and sincere, and to develop an outstanding personality and the qualities necessary for good citizenship and forceful living, his success as a pharmacist is reasonably assured.

Professional Relations¹

Introduction

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The pharmacist's professional life and activities impinge upon those of the physician, the dentist, the nurse, the veterinarian and other health workers, as well as upon those of other pharmacists and the lay public. We know that pharmacists *may* have great influence in controlling and protecting the community health. In many cases such influence is lacking. Whose fault is it? In some localities, pharmacists and other workers in the health field do not cooperate in a friendly way. What can be done to remedy such a situation? In numerous cities and towns and villages pharmacy and pharmacists are not appreciated at their true values. What is the reason?

It is easy to criticize, to lay the blame on others, and to talk about their shortcomings and iniquities. We must admit, however, that far too often pharmacists themselves are to blame for their own troubles. Sometimes they do not take their professional duties and obligations seriously. They overlook opportunities. Possibly they do not even think about the matter of professional relationships. Too frequently minds are dormant and hands idle. But we cannot afford inaction at a time when professional and social and economic changes are so rapid and so sweeping as they are today. Isn't it possible that pharmacists need to be conditioned to a new way of thinking?

We want this discussion to provoke thought, thought that will eventually be translated into positive action. We have chosen the members of the panel with great care. We did not invite men who might be long on ideals and theory, and short on practice. These men know what they are talking about. Each has had experience in the special phase of the work he will discuss. We hope that these speakers will succeed in stirring up in the pharmacists who listen to them a kind of

¹A panel discussion was participated in at the Atlanta meeting by Professors Andrews, Zopf, Schicks, and Eidsmoe. Dean Hugh C. Muldoon, presided, and edited the discussions and wrote both the introduction and the conclusion printed in connection with the papers that constitute the panel.—Editor.

worthy dissatisfaction with things as they are. We shall be pleased if they may be able to broaden some point of view that has been too narrowly conceived. Each member of the panel will be satisfied if we can give to even a few pharmacists a changed attitude toward their work, and a new understanding of some of the opportunities for professional advancement that are open to all pharmacists no matter where they may be located.

Relationship with Physicians

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Many young men who have just finished their college education act as if they knew all there is to know. Sometimes they are merely trying to overcome timidity or a lack of confidence in themselves. Young graduates in pharmacy, however, soon find out how comparatively ignorant they are until they have had considerable practical experience behind a prescription counter. Situations arise continually for which their schooling could not prepare them.

Nowadays it is impossible for any one person to know everything. Each must make a specialty of his own particular line of work. The members of the various health professions thus become dependent upon each other. Since this is true, it is up to the individual pharmacist to make himself so important to the members of the other health professions that they will look upon the pharmacist as an indispensable agent standing between patient and doctor. Schools of pharmacy now recognize the need that the pharmacist has for special training in this direction. They are endeavoring sincerely to equip the young pharmacists who come under their direction with all the diversified knowledge that is necessary to enable them to take their proper place in the health program of tomorrow.

There are many so-called obstacles to perfect harmony among the several health professions. Pet grievances such as are bound to come up when one is dealing with human nature soon fade away, however, when conferences are held within the family circle to iron out the difficulties. An inter-

mingling of the different professions plays an important part in helping to solve common problems. Each group can learn at first hand of the problems confronting the other professions. There is then a better understanding of the difficulties of their solution.

The first great problem, as I see it, is to lay down more definite dividing lines between the various health professions. This will not be easy. Perplexing problems will have to be solved. Much careful thought will be required. Such questions will arise as:

Should a physician dispense to his patients medicinals other than those that are required for injection?

Should a physician in a large community be allowed to sign a death certificate if he has prepared and dispensed the medicines taken by the patient?

Under what conditions should a pharmacist render first aid?

Is it permissible for a pharmacist to suggest remedies for definite aches and pains of his customers, or should they be sent to a physician for examination?

If, and when, the duties of the various professions are more clearly defined, such questions as those mentioned, and the problems of the dispensing physician and the counter-prescribing pharmacist will no longer be important topics for discussion by either group.

That physicians are willing actively to cooperate with pharmacists in improving the relationship between the two professions is shown by the results of a questionnaire that was sent recently to 632 practicing physicians in eight states. Seventy-seven per cent of the physicians replying were in favor of the organization of national and state allied professional relations committees. The friendliness of the medical group should encourage pharmaceutical workers to act.

We know that the training of the physician is designed to prepare him to diagnose the illnesses of patients. He is best qualified to perform this duty. If this work is well done, he will not have time to do more than to state on a prescription form the medicines needed for the individual patient's illness. His spare time will be occupied in keeping up with newer methods of diagnosis and treatment, with reviewing older methods, and in using his judgment and experience in performing his other duties. He will then of necessity depend upon other professional workers to perform their respective duties in the health program. With this set-up the pharma-

cist's duty will be to supply the medicaments in the dosage and form specified by the doctor.

Some will have the impression that under such an arrangement the pharmacist will be wholly subordinate to the doctor. I believe all will agree, however, that the doctor would be helpless in treating the patient if the proper medicines were not to be had.

Let us use a surgical operation as an example. The surgeon is an expert in using his instruments, but regardless of his skill, he would be a failure from the patient's standpoint if he had to operate without an anesthetic to render the patient unconscious, an antiseptic to prevent infection, a stimulant for the weak heart, or a narcotic to relieve the pain after the operation. In most instances the surgeon knows little about the medicaments he uses beyond when they should be employed and the therapeutic effect he should obtain from a definite dose. The training necessary to produce a skilled surgeon does not include the preparation of medicinals in suitable forms for administration. He is, therefore, dependent upon another highly trained individual, the pharmacist, to supply him with the information and the materials that he, himself, is not capable of supplying.

I feel that many pharmacists, and members of the other professions as well, have a tendency to use the destructive term *do not* instead of the constructive term *do*. Picture the "do not" individual. You see a grouchy, lazy, and untidy person, always complaining about how bad business is, and continually bemoaning the fact that conditions are not like they were in the olden days. The truth is that while those around him are doing things, this man is sitting back and taking things easy. In contrast, you will find the "do" individual to be a pleasant, energetic, neat person who is progressing instead of complaining. Those who grumble about conditions in pharmacy should ask themselves this question: What am I doing to better conditions in my chosen profession?

In concluding these remarks I should like to leave with you a few general thoughts most of which apply equally well to all professions:

1. Be a booster of your profession, not a knocker. Remember it is your choice; the profession did not choose you.
2. As a pharmacist, realize that you were trained to prepare medicinal agents in suitable forms for administration. You were not trained to diagnose the particular illness of a patient.

- You have enough responsibilities of your own. Let the person trained in diagnosis shoulder his own responsibility.
3. Be tactful when conversing with patients and the members of other professions. A great deal can be accomplished by saying the right thing at the proper time.
 4. Develop your own individual personality. Be natural. By doing so you will be at ease at all times. You will not have to act.
 5. Associate with people in other walks of life, not only with those of your own profession. By doing so you will become broadened. Those with whom you associate will have a higher regard for your profession.
 6. Keep up-to-date in your profession; otherwise you will soon become known as a "has-been."
 7. Join your professional associations, and take an active part in their affairs. Much more can be accomplished by an active group.
 8. Do your part in aiding the work carried on by your local, state, and national inter-professional relations committees. Their success is dependent upon your cooperation.

DISCUSSION

During the discussion Professor Andrews was asked how the dispensing physician could best be handled. His reply was: "Sell the physician the materials he dispenses."

When a pharmacist details a physician, he should plan to arrive at the physician's office when the physician is not too busy. He should have something definite to discuss during his call. He should stay not more than five minutes, less if the doctor is busy. If the pharmacist tells a worth-while story and tells it well, he will arouse the interest of the physician.

Relationship with Hospitals and Nurses

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Pharmacy's association with hospitals involves more than a physician-pharmacist relationship. It represents a direct association with all departments and individuals who are a part of such institutions. The hospital pharmacist's duties bring him in contact with administrators, physicians, surgeons, dental surgeons, nurses, and also patients in hospitals maintaining an out-patient department.

At no time has a more favorable hospital relationship existed than that of the present. The American Hospital Association is definitely interested in the advancement of the present hospital pharmacy program. They have a standing pharmacy committee which has been very cooperative in de-

veloping interest among their members. Many of the State Hospital Associations have established sectional meetings for hospital pharmacists simultaneous with their annual state meeting. As a group they are appreciative of the value which proper pharmaceutical service renders to them.

The hospital association meetings are largely attended by the administrative officers representing hospitals of that particular state or area. They have an interest in our profession which we might say is not strictly professional. They are cognizant that the hospital pharmacy renders a professional service but in many cases this service has been limited by insufficient funds, lack of staff cooperation, or improper selection of the individual responsible for this service.

Through the establishment of the hospital subsection of the American Pharmaceutical Association a definite stride was taken to correlate the interests and advance the standing of this branch of our profession. The problems of the hospital pharmacist while definitely pharmaceutical are sufficiently varied to be worthy of a place for discussion. Municipal and state associations of hospital pharmacists have been organized and are gaining the respect of the hospital associations. These local and state organizations indicate the definite interest of the hospital pharmacists as a group. If they will correlate their efforts and direct them through the sub-section of the American Pharmaceutical Association rather than establish a national association of their own, they will do much for the advancement of their field and also carry the support of the entire pharmaceutical association.

I like to refer to the three foundation stones of hospital pharmacy as the three S's. They are symbolic of Service, Safety and Savings. Service and Safety are factors which any conscientious administrator insists must prevail throughout the entire hospital. The service which a pharmacist is able to render to the medical staff is without bounds. Proper pharmaceutical service is reflected in the care and treatment of that most important individual, the patient. No hospital superintendent wants the good will of his institution marred in any way. He is ultra-careful of accidents resulting through carelessness or improper equipment. The pharmacist is the best safety feature of the entire institution. The word Savings need only be mentioned, and an immediate audience is assured the hospital pharmacist. Savings through the manu-

facture of many galenicals, savings through the proper storage and handling of drugs, savings through controlled purchases and minimization of stock duplications are but a few of the methods by which sizable reductions of pharmaceutical costs can be made. The savings of the pharmacy can extend beyond the strictly medical requirements of the hospital. With proper equipment and additional help many preparations for use by the housekeeping department such as soaps, washing powders, fly sprays and so forth can be manufactured at substantial savings.

Too many hospital pharmacists are reticent. They seem to feel subservient. They have developed an attitude of timidity. This may be due, in part, to an administrator placing responsibility upon the pharmacist but not endowing him with the proper authority to execute such acts. Introspection may again reveal a pharmacist, unqualified—one who is unable to cope with the requirements.

The factor of educational qualifications is of paramount importance in a discussion of our relationship with hospitals. Too frequently we find non-registered individuals directing the pharmacy and performing the duties of the pharmacist. The type of service which the pharmacy is in a position to render to the hospital is directly proportional to the aptitude and educational qualifications of the pharmacist and to a great extent upon the cooperative response of the general hospital staff.

In most hospitals the relationship of the pharmacist and the nursing staff is one of helpful cooperation. In hospitals maintaining a nurses' training school an opportunity for instruction in materia medica, drugs and solutions, chemistry, biologicals, posology and other basic subjects of value to the nurse in her care of the patient can very ably be presented by the pharmacist. It is important to remember that the opinion of nurses in training toward the pharmaceutical profession as a whole, is formulated through the qualifications of the hospital pharmacist. As a group the nurses are vitally interested in inter-professional group movements. In the state of Iowa they have taken an active part, devoting a half-day of their state program to papers dealing with inter-professional relations. They can do much for pharmacy by strengthening the patient or lay relationship. Their confidence in our profession is bound to be reflected to their patients. Nurses

welcome pharmaceutical information with respect to the keeping quality of drugs, the proper methods of handling caustic and poisonous preparations, and so forth.

It may well be said that hospitals form the nucleus for improved inter-professional relations. The physician staff of many hospitals consists of a few resident physicians, the majority being visiting or associate members who maintain offices elsewhere. Many times the visiting physicians are members of the dispensing group. Their only contact with professional pharmacy is through their hospitalized patients. They do not give the retail professional pharmacist an opportunity to offer professional service or present official preparations in lieu of the more expensive specialties or proprietaries, many of which are of unknown formula. Therefore, only the best of our profession should be encouraged to become hospital pharmacists for they not only must serve the institution, the physicians, the nurses and the other departments, but they are in a position to do an excellent piece of salesmanship—that of selling professional pharmaceutical service. In most instances the regular and resident staff physicians of the hospitals are very willing to cooperate with the pharmacist, in fact they seek his advice and council on pharmaceutical problems.

The staff meeting of the hospital affords the pharmacist an excellent opportunity to present such subjects as official preparations, hospital formulary specifications, dosages, palatable and improved methods of giving medication, new preparations, cautions and drug costs. Such subject matter is important and definitely of interest to the physicians, nurses and administrative staff.

In the returns of the American Pharmaceutical Association Hospital Pharmacy Survey, under the title of suggestions and comments, we find the following occurring most frequently:

1. Employment of pharmacist in all hospitals.
2. Pharmacist to be a member of the hospital staff.
3. Compilation of a standard hospital formulary.
4. Committee of staff physicians and pharmacists to have voice in operation of pharmacy.
5. Limit the use of proprietaries and specialties.

These comments indicate that some pharmacists are not receiving proper recognition from their hospitals. The employment of pharmacists for all hospitals also needs atten-

tion, but I like to believe with the present hospital association interest, the pharmaceutical enthusiasm, and the minimum standards for hospital pharmacy as outlined by the American College of Surgeons, these conditions will be changed and a still better relationship will be established.

DISCUSSION

In replying to a direct question Professor Zopf stated that he believed that the dispensing of prescriptions in the out-patient department of a privately owned hospital does affect to some extent the business of the professional pharmacist who serves the district.

Queried as to what extent the physician's ideas of pharmacy may be colored by the fact that many hospitals are still permitted to operate without a registered pharmacist, Mr. Zopf replied:

"Impressions of Pharmacy gained by physicians during their period of training and internship are very important. It is easy to note an interne who has received his training in a school or hospital where the Pharmacy and the Pharmacist are considered an integral part of the institution. Physicians of this type are very cooperative and consider the pharmacist and pharmacy a special department of the hospital. They frequently come to the pharmacy to discuss problems pertaining to their prescribing of medication. In my opinion one of the most important things for us to remember is the fact that the physician's first contact with our profession is his contact with the pharmacist in the hospital of his internship."

Professor Zopf also stated:

"We have raised the standards of our profession. We must now impress the hospital administrators with the fact that the pharmacist is a professional man and not a technician. I am certain that we are making progress for the American Hospital Association is vitally interested in hospital pharmacy and are cooperating in every way. The Hospital Association is anxious to improve the pharmaceutical service of their institutions. We must, therefore, supply them with properly trained pharmacists."

Relations with Dentists

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Large sums mean little to most of us, but here are a few that should make us think because we can have a share of them. Let us stop to consider that:

It costs \$450,000,000 a year to treat dental disease in 25 per cent of our population.

Dentists spend \$3,000,000 a year for local anesthetics. They spend an equal amount for topical anesthetics.

What do these figures mean to most pharmacists? Dollars lost which they might have had. Why? Because most of it is spent at dental specialty drug houses. *Not* with the pharmacist.

Pharmacists are drug specialists. Why doesn't some of this business come into their stores? The answer is that others have gone after it, but the pharmacist has not. The dentist's business is worth while. The pharmacist should have his share.

What manner of man is this dentist who uses so many drugs, yet his business is comparatively unknown to the pharmacist?

His education and the advancement in dental education is almost parallel to the pharmacist and pharmaceutical education. Twenty years ago the dentist was a skilled mechanic. His job was to clean decayed matter from teeth in preparation to filling them. If decay involved the pulp, the pulp was killed and the root canal filled. That was the end of his job. He was not qualified to do other things. He was not a diagnostician. He was not prepared to treat diseases in the oral cavity.

But what about the qualifications of the dentist today? The dentist is no longer thought of as a mechanic. The layman considers him with as much respect as the physician. To what is this meteoric rise in prestige with his patients due? Two things, no doubt, of equal importance:

- (a) Pride in his profession.
- (b) Advance in academic standards.

The dentist is fast becoming a recognized diagnostician and surgeon. He remedies malformations in the mouth. He treats diseases in the mouth other than those in the teeth. He is interested in pre-natal development of the child to insure the new-born better teeth and better health. He is interested in preventing caries as well as in treating them. His importance in the medical field continues to receive greater recognition. This should mean that the need for drugs in his practice will increase.

With this picture of the dentist, with its possibilities for pharmaceutical service in mind, is the pharmacist interested? Permit me to give you a few examples of what the dentist pays

for drugs. Would you think you had made a fair profit if you could sell:

2 drachms of 20 or 30 per cent trichloroacetic acid for \$1.50?

3 oz. of colored, flavored pumice for \$1.50 to \$2.00?

20 grs. of thymol and zinc oxide for \$1.50?

1 oz. of 10 per cent solution benzocain for \$2.50?

These are prices the dentist pays for proprietaries. The pharmacist is often accused of charging exorbitant prices, but even if he blushed, his conscience would not let him ask such prices.

Despite advances in the dental profession, dentists do not have sufficient knowledge of prescription writing. Most dentists want to write prescriptions, but their limited knowledge of the procedure is a handicap. They want to use official medication, but they must be told more about it. They will buy their supplies from the pharmacist if the pharmacist will make an effort to sell them.

What are some of the drugs the dentist requires for his practice? They are: local anesthetics, such as protocain; topical anesthetics; abrasives, such as pumice and powdered quartz; antiseptics-germicides; mouth washes, sterilizing solutions, sedatives, analgesics, hypnotics, haemostatics, and many others. The pharmacist already has a stock of these things in his store.

Statistics gathered from dentists in six states show that:

Seventy-seven per cent of the dentists replying to a questionnaire would welcome the pharmacist as a consultant at his office. This is a direct request for pharmaceutical service.

Ninety-three per cent would welcome a printed prescription service from the pharmacist.

Ninety-six per cent would attend a series of lectures on official medication if such information were made available to them. This has been accomplished with much success in New Jersey.

Ninety-six per cent said there should be established a National Allied Inter-professional Relations Committee composed of physicians, dentists, nurses, veterinarians, and pharmacists, where matters of mutual interest such as drug medication could be presented for consideration. Such a committee, if well organized, could contribute much to the health of the nation and go far in aiding the professional business of the pharmacist.

If this opportunity for new business gets away from the pharmacist, he should not complain. It is not only an opportunity for him to better his financial standing, but one to advance his professional prestige as well. He can not afford to lose either of these opportunities.

DISCUSSION

Pharmacists will be interested to know that a considerable number of dentists report that they now write from two to four prescriptions per day per patient. Others may refrain from formal prescription writing because they realize their inability to write a prescription in the proper form. Dentists are desirous of writing prescriptions but they need the help of the pharmacist to do so. They will purchase their office medication from the pharmacist if he will let them know that he carries the same material that the dental supply houses do, and that in many instances the price will be greatly reduced.

Dentists unthinkingly encourage self-medication by giving samples, or by telling the patient verbally, or by writing in a prescriptoin, or by merely a memorandum of the material the patient is to obtain by name from the drug store. If the pharmacist will tactfully inform the dentist of the disadvantages of these practices, he will be grateful.

At present, dentists are in general detailed by only one standard pharmaceutical house. This is an advantage to the pharmacist who wishes to detail the dentist before he has increasing competition from detail men of other pharmaceutical houses. The service of the pharmaceutical house already detailing the dentist is also of advantage to the pharmacist, for the pharmacist may buy dental specialties from this house for sale to the dentist. These specialties he can purchase from specialty dental houses. Dental specialty houses get most of the dentist's business.

Before pharmacists detail dentists they should familiarize themselves with the dental journals, especially the *Journal of the American Dental Association*. The section containing the reports of the Council on Dental Therapeutics is particularly helpful. Pharmacists should write to the American Dental Association, 212 East Superior Street, Chicago, Illinois, for a copy of the latest edition of *Accepted Dental Remedies* before detailing dentists.

The students in a few colleges of pharmacy are now being specially trained for service to the dental profession.

Dentists are appreciative of the special lectures that have been offered to them by pharmacists. They are particularly interested in information concerning the following medication: local anesthetics, astringents and haemostatics, germicides and antiseptics (sterilizing solutions), stimulants, analgesics (pre and post operative pain), hypnotics and sedatives, abrasive agents, cavity linings and varnishes, pulp capping preparations, mouth washes (plain and medicated), dentifrices (liquid for tooth brush), tooth paste and tooth powder (plain and medicated), denture adhesive, denture cleaning agents, disclosing solutions, counter-irritants, and others.

Relations with the Public and with Other Pharmacists

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With the Public

The relations of the pharmacist with the public may be divided into his obligations to the public and the attitude of the public toward him. First among the obligations which are worthy of consideration are the personal qualifications of the pharmacist himself. These consist of education and character. Although the first of these is being largely taken care of by state requirements for registration, we will be remiss in our duties if we do not continue to improve our educational standing. If we maintain only that which we have, we will in a short time be far behind the other professions which are steadily advancing.

The character qualification is most important and one which has received too little consideration up to the present time. The fact that pharmacists do rank high in regard to character is due to fortunate accident rather than to any definite program on the part of pharmacists in the profession, either now or in the past. When we consider that for the most part, the public has no option but to accept pharmaceutical services purely on faith, it becomes increasingly evident that the character qualification is highly significant.

The second obligation concerns equipment and stock. Certainly the pharmacy should be clean, sanitary, and inviting. It should be sufficiently up-to-date to meet the needs of the community. This means that the stock and equipment of the pharmacy should be adequate to provide at least the ordinary and even some of the unusual services demanded in its trade area. There is at present some impetus being given to a proposal to establish minimum requirements for drug stores. Such a requirement would be an assurance that at least ordinary professional service might be available at the institution bearing the sign "Pharmacy."

A third obligation of the pharmacist concerns public welfare. He should make himself a part of the community in which he lives, and should take an active interest in community affairs. By this, it is not meant that he must be militantly

aggressive nor that he should neglect his own business, for that is itself a public welfare institution. He should, however, accept his just share of community work, even to the extent of holding public office under suitable circumstances, and should always encourage those activities which are in the interest of the public. Only such legislation which has for its object the protection of the public should receive the support of the pharmacist. Not only is legislation for the sake of special privilege looked upon with extreme disfavor, but there are many conditions to be corrected which would be for the good of the public, and at the same time would be decidedly advantageous to the pharmacist himself. If the pharmacist will devote himself to this type of legislation, he will have little need to concern himself with that which is purely monopolistic in character.

If the pharmacist is to serve the public in the fullest measure he must have from that public certain essential considerations. Among these are confidence, respect for him as a professional man, loyalty, and the recognition that he is entitled to fair remuneration for his services. These considerations must not be expected by him as something to which he is justly entitled. On the contrary, he must earn them. He must win the confidence of the public as to his professional ability and also as to both his professional and commercial integrity. Respect for him as a professional man will be directly in proportion to the attention he gives to the professional side of his business. If he conducts a highly ethical establishment, one in which prompt and careful attention is given to professional needs, that phase of his business will increase, and his reputation as a professional man will develop. If, on the other hand, he neglects the professional side or allows it to be crowded into the background by commercialism, he should make no complaint if he is looked upon as one who is purely mercenary, a mere shop-keeper, a trader, or a huckster.

Loyalty from the public, not alone to the individual pharmacist, but to pharmacy as an institution, is a prime essential. It will be yielded by members of communities just to that extent that they find that courtesy, dependable service, fair treatment, and professional integrity are accorded them in the pharmacy.

The recognition on the part of the public that the pharmacist is entitled to fair remuneration for his services would to

a great extent dispel the cloud of suspicion which is resting upon pharmacy. It is unfortunately true that many people consider that the prices charged by the pharmacist are grossly exorbitant. There is also a conviction in the minds of many lay persons that the prices charged for prescriptions have no relation to the value of the medicinal but are fixed by the pharmacist according to whatever he believes the traffic will bear. This conviction in the mind of the lay persons is strengthened by the discovery that the same prescription may cost him two or three times as much in one drug store as it will in another. The idea that the lower price may have been below actual cost does not seem at all credible to him, although results of surveys have shown that as many prescriptions are underpriced as are overpriced. The remedy for the condition is the adoption of a uniform pricing schedule.

Prices which allow a reasonable profit to the pharmacist not only would be more equitable for the customer, but the pharmacist's reputation for fair dealing would be raised to a higher level than that upon which it now rests.

With Other Pharmacists

In his relations with other pharmacists the pharmacist should concern himself with the obligations which he owes to the other members of his profession, and with the benefits which he has a right to expect from his pharmaceutical organizations.

Of first importance among his obligations is that to participate as actively as possible in local, state, and national pharmaceutical affairs. This obligation may be considered as a privilege as well as a duty, since he will find that if he does participate, he will receive splendid returns from the efforts which he puts forth in these activities. In some states, all licentiates are required to be members of the State Pharmaceutical Association. Such requirement has the advantage of maintaining contact with the individual pharmacist by his state organization.

A second obligation is to work for the advancement of pharmacy. He may himself be able to make some contribution to scientific progress, and he certainly can aid in the progress of his profession by conducting his own pharmacy along high and ethical lines. He can also encourage pharmaceutical research on the part of others by giving financial assistance

for the study of problems affecting pharmacy. Such assistance need not involve large sums, since several small contributions may be pooled to finance a single piece of research.

It is the duty of all pharmacists "to strive to raise and maintain pharmacy on that high level where it will command the respect of other professions" and of the public. In addition to conducting his own establishment on a high plane, the pharmacist can give proper publicity to the recognized contributions which pharmacy has made to humanity, which if known, might in no small degree favorably influence the opinion of the public toward this ancient and honorable institution. Petty criticism of competitors should be avoided. It not only is harmful to the individual, but it has the effect of destroying faith in the entire institution of pharmacy.

Older pharmacists should ever bear in mind that the apprentice will be greatly influenced by the attitude of his preceptor. The proprietor especially should by careful instruction and by his own example endeavor to impress upon the younger members of his profession the dignity of his vocation and the opportunities for service which pharmacy affords.

Maintenance of high standards for his profession is a benefit which the pharmacist is entitled to expect from his pharmaceutical organizations. These may be upheld by the organizations policing their own membership so that practices which are inimical to the best interests of pharmacy will be eliminated. High standards for admission to practice pharmacy must of course be maintained by the State Boards, but the Associations must not lose sight of the fact that Boards are greatly influenced by Association wishes in this regard.

Pharmaceutical Associations should sponsor and support legislation which will restrict the practice of pharmacy to registered pharmacists. This is not merely a matter of justice to the pharmacist, but it is for the protection of the public. The public has recognized the fact that pharmacy requires a highly specialized training and it has taxed itself to educate specially trained persons to perform this service. Should not the public then be protected at least to the extent of being assured that only those who have met the lawful requirements will be permitted to engage in this practice?

The pharmacist is entitled to expect that his organizations will work toward improved relations with other pharmaceutical organizations and with other professional groups. This

may be accomplished by means of joint meetings with other groups, by the exchange of authorized representatives and speakers at the meetings or conventions of the respective organizations, and by means of membership in and representation on interprofessional groups. The benefits which result from these inter-organization contacts can not be over-estimated. If nothing more develops than a better understanding of each other's problems, it would still be a very worth-while enterprise.

Dissemination of information as to newer developments in the pharmaceutical field is another service which the pharmaceutical organizations should give to the individual pharmacist. Two methods for carrying out this service may be mentioned here. In the first method, the Association (with or without the cooperation of the colleges) may establish an extension service through which information, usually in the form of bulletins, is sent out to the pharmacist at stated intervals during the year. This method offers the advantage that the information would be readily and easily available to every pharmacist in the Association. It should be especially welcomed by those who find it difficult to absent themselves from their stores for the purpose of attending meetings.

Under the second plan, the state is divided into a number of districts, and in each of these districts, meetings are sponsored by the State Association, usually once a month. The State Association should furnish an instructor or discussion leader, whose duty it should be to present the newer information and to arrange or assist in arranging programs which will be of the greatest interest and benefit to the practicing pharmacist. This plan has the advantage of bringing the pharmacists together in groups which are small enough so that the individuals soon become well acquainted. This is conducive to freer discussion and greater interest. The chief difficulty is to get the pharmacists started to attend the meetings, but if the programs are carefully planned and well carried out, interest will develop and attendance will grow. Either of the above plans has advantages. Either plan might be adopted, or if desired, both plans could be put into operation, as one would not interfere with the other.

State associations which are unable to finance services of this nature should inquire into the provisions of the George-Dean Act, which provides Federal funds for adult vocational

education. These funds are available to the various states on a basis of population, and may be used for the purposes above outlined.

DISCUSSION

In answer to a question as to whether he believed that legislation in the interest of pharmacy is always in the interest of the public, Professor Eidsmoe replied:

"Legislation which is truly in the interest of the public is in the interest of pharmacy as well. Pharmacists and pharmaceutical organizations have sponsored a great deal of legislation that has been purely selfish in character. Such a program of legislative activity on the part of pharmacists and pharmaceutical organizations will lead to repercussions, I am inclined to think, and it is entirely unsound. If a sound legislative program is to be developed, it must be one which has the protection of the public in mind, and not one that is intended to exact special privilege for the pharmacist."

Replying to an inquiry as to why pharmacists do not report other pharmacists for malpractice, and as to how pharmacy should be policed, Mr. Eidsmoe stated:

"The policing of pharmacy should be in the hands of pharmacists. The state association should combine with the State Board of Pharmacy in drafting regulatory measures which would guide their own memberships. The administration of these regulatory measures should be in the hands of a qualified, registered pharmacist, however. Pharmacists should sponsor legislation. In this they must get ahead of the public in order to prevent others from drafting legislation that will be harmful to the interests of pharmacy."

Professor Eidsmoe believes that the pharmacist wins confidence and respect by making the public aware of his professional ability. The atmosphere of his store, professional window displays, and the pharmacist's general attitude should convey to the lay person that here is a man who is an expert in his field. He must have a reputation for honesty and fair dealing. There must be no doubt of his professional integrity. He must convince the people with whom he comes in contact that he has their best interests at heart. He should show an active interest in community affairs.

The pharmacist should give proper publicity to the important contributions that pharmacy has made to science. He must avoid petty criticism of fellow pharmacists, but he must also cease to protect those who demonstrate their unfitness for the profession.

The future of pharmacy can be determined by those who are now engaged in its practice if they will but recognize the fact that most of the young people who choose pharmacy as their life work do so upon the advice of some practicing pharmacist. Encouragement to enter this field should be given only to those young men and women of the highest character and intelligence qualifications. The regard for professional integrity and the adherence to pharmaceutical ethics on the part of the apprentice will be in direct proportion to the type of instruction and to the kind of guidance he receives from his employer.

CONCLUSION

Throughout this discussion many important points have been brought to our attention. Possibly, new avenues of thought have been opened up. We, as pharmacists, are deeply concerned about what informed and intelligent persons think of us. We have learned tonight that there are numerous things that we can do to advance professional pharmacy, and to add to its dignity and effectiveness. We all have a definite responsibility in this respect.

When any group advances, related groups are aided. Groups habitually level downward, seeking the level of the lower, not the higher, members of the group. Consequently, we must do all that we can to raise the general level, to eliminate the unworthy, to widen our cultural front, to create enthusiasm for pharmacy, to advance the social, economic, and professional standing of pharmacists, to avoid unfavorable publicity, and, in short, to make of pharmacy what it really should be.

We can improve inter-professional relationships. We should start at once. We must not wait for others. Pharmacists need no longer be lonely men professionally. The other professions are now glad to cooperate with us. Pharmacists must not be reluctant to accept leadership.

By tradition, pharmacy has a rich heritage. We should try to recapture whatever of it may have been lost, and to add to it whatever we may. Liebig, the great chemist, had a cupboard in which he hid his mistakes. Let all pharmacists try to plan so that in the future pharmacy's "cupboard of mistakes" will be as barren as Mother Hubbard's.

Dispensing Pharmacy in American Universities¹

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Introduction

The Plans and Problems Committee of the American Association of Colleges of Pharmacy has as one of its projects the study of dispensing as it is now being taught by the member institutions. The reasons for the study have already

¹A Study of the Problems and Plans Committee.

been stated in a letter addressed at its inception to all the colleges requested to participate. To reiterate briefly they are twofold. First, such knowledge will be invaluable to the men actually giving instruction in the field. A nationwide comparison of one's special activities is almost mandatory to truly successful teaching. The worth of intelligent and comprehensive understanding of what one's contemporaries are doing is obvious. Second, the information is greatly needed by the Syllabus Committee now charged by the American Council on Pharmaceutical Education with the very real responsibility of unifying the teaching in our profession. To do this the syllabus must be constructed in co-operation with everyone influenced directly by its monographs.

This report brings the study up-to-date.

The data presented was collected by means of a questionnaire sent to the member colleges and answered in considerable detail by approximately 3/5 of the recipients. The replies were divided into eight major divisions which will be discussed seriatim. In attempting to make the data broader in scope by certain correlations the author was handicapped because frequently not all the questions on related subjects were answered. This also leaves occasional gaps in the tables presented. When replies were ambiguous they were not considered in preparing the report for fear of misinterpretation. In the few cases where the replies were clear, particularly when reporting numerical data, but seemingly inconsistent with other portions of information returned by the college, they were still accepted as written.

The Elementary Course

The Name. It will astound no one familiar with our catalogues to hear that the naming of this course has followed no concise pattern. The titles in Table I indicate that at least this phase of pharmaceutical thought is still ruggedly individual.

TABLE I

Names of the Elementary Course in Dispensing

	Number of times used
Dispensing	3
Dispensing Pharmacy	6
Dispensing Laboratory	1
Elementary Dispensing	1
General Dispensing Pharmacy	1
Incompatibilities and Dispensing	1
Prescriptions and Dispensing	1
Compounding and Dispensing	1
Elementary Prescription Practice	1
Prescription Practice	4
Prescriptions	3
Pharmacy and Prescription Practice	1
Prescription Lectures	1
Pharmacy	3
Operative Pharmacy	1
Theory and Practice of Pharmacy	1
Pharmaceutical Technique	1

Such variation in ideas concerning what descriptive title should be given a basic course designed for nearly identical purposes regardless of where taught might be an indication that all the attempts at naming have so far been unsatisfactory. The variations are largely escape efforts endeavoring rather aimlessly to improve the situation.

While considering the problem of a uniform name for a uniform course it would be well also to study any psychological advantage which might be gained by a change. That psychology is important is attested to by Dr. Edward Kremers' experience described in the April, 1939, issue of the *American Journal of Pharmaceutical Education* where he tells of organizing a Division of Pharmaceutical Chemistry for connection with the American Chemical Society. Its attendance was poor until someone had the happy thought of calling it Division of Medicinal Chemicals. To quote Dr. Kremers, "since then the division has flourished at least numerically." I believe the descriptive titles of certain of the pharmacy courses could be improved to the end that their mention would result in a response reaction of respect. For example, we respect the word surgery even though we know some awful butchery goes on under its protection. We respect the words dental medicine even though we know some of its practitioners are dentally speaking illiterate. There is prestige tied up in the word

lawyer yet everyone knows all about ambulance chasing, crook springing and other chicanery practiced by men of that profession. Can we not, knowing the power of names, use the knowledge to help swing our profession into more widely respected channels? It should be possible to more closely identify such courses as dispensing, which after all is just an arbitrary choice for a name, with the use of medicines. To illustrate, why not call the work "General or Medical Prescription Technology?" While such a change in descriptive terminology does not remove the variety store front to our profession it does emphasize more than has been done the important, basic health service behind the scenes. And it costs nothing to attempt except the overcoming of prejudice and tradition, both of which are frequently set aside with profit.

Definition of the Course. Defining or describing the elementary course should be comparatively simple inasmuch as practically everyone answering the questionnaire accepted the Syllabus outline as basically adequate. This should indicate a fundamental similarity of work throughout the nation. Therefore with a comparative limited professional vocabulary at our command the catalog and other descriptions of elementary dispensing work should by corollary be much alike. It would seem logical that all should read something like this, "A study of the fundamentals involved in compounding and dispensing prescriptions." However, the academic mind was never sympathetic with simplicity in the written word, rather such things as catalogues were designed to create an aura at which the reader could marvel and only wish he could understand. The expected similarity of definition does not exist.

Position in Curriculum. In general it is the belief that training in the putting together of medicines for prescriptions should be left to the upper division of undergraduate work. This belief is based on the fact that compounding and dispensing is the pivotal point of the entire curriculum. Its technology requires familiarity with the principles of pharmacy, chemistry, and pharmacology which therefore must precede.

In view of the general placing of dispensing in the junior and senior years it is quite surprising to note that one institution begins the work in the freshman year and two others in the sophomore year.

Class and Laboratory Hours per Week; Length of Course. The average course consists of two class periods, five hours of

laboratory a week and is maintained for 2 quarters of 1.7 semesters. For pivotal work it would appear the subject matter ought to be great enough to demand more time for mastering its fundamentals. Table II shows the position in the curricula occupied by the elementary course.

TABLE II
Curriculum arrangement for the elementary dispensing course in the reporting schools.

Year	Class Hours	Laboratory Hours	Quarter or Semester
1	2	9	2 qtr.
2	2	3	3 qtr.
2	2	3	2 sem.
3	2	2	2 qtr.
3	2	6	1 sem.
3	1	2	3 qtr.
3	3	4	1 qtr.
3	3	4	1 qtr.
3	2	3	2 sem.
3	2	—	2 sem.
3	2	4	1 sem.
3	2	6	2 sem.
3	1	2	2 sem.
3	1	3	1 sem.
3	3	3	2 sem.
3	2	6	2 sem.
3	2	6	2 sem.
3	2	6	2 sem.
3	3	6	2 sem.
3-4	2	4	3 sem.
4	2	6	2 qtr.
4	0	6	1 sem.
4	1	2	2 sem.
4	2	3	1 qtr.
4	2	4	2 sem.
4	4	3	1 sem.
4	2	6	2 sem.
4	2	4	3 sem.
4	2	6	2 sem.
4	3	9	2 sem.
Average 2		5	2 quarters 1.7 semesters

Text. Only two texts have general acceptance by our colleges for general dispensing work. One does not have to look far for the answer. These books are really without competition since others containing the material required are designed principally for other subjects.

Hospital, Dental, and Veterinary Pharmacy. That comparatively little work is being done by the member colleges in these fields is evidenced by the fact that 55 per cent teach no hospital pharmacy, 29 per cent do a little, and 16 per cent do only a moderate amount.

In dental pharmacy 50 per cent teach nothing, 33 per cent teach but little and 17 per cent give a moderate amount of time.

Veterinary pharmacy has very nearly the same degree of academic popularity. Fifty-eight per cent of the reporting colleges teach none of it, 33 per cent little, and 9 per cent only a moderate amount.

TABLE III
Time Devoted to Specialized Branches of Dispensing
Number of Colleges Teaching

Course	None	Little	Moderate Amount
Hospital Pharmacy	55 per cent	29 per cent	16 per cent
Dental Pharmacy	50 per cent	33 per cent	17 per cent
Veterinary Pharmacy	58 per cent	33 per cent	9 per cent

Use of Syllabus. Practically every college agrees on a basic acceptance of the Syllabus as a guide for the elementary course. Likewise, practically all inserted certain reservations with respect to its use. For the benefit of the Syllabus Committee and teachers of dispensing typical opinions are included in the next three pages.

"The present Syllabus outline meets our basic requirements. It is not followed exactly, because it is felt that the course should be somewhat flexible to meet local conditions. Furthermore, the instructor should show some initiative and the course should, in part at least, reflect the individual personality of the instructor."

"Syllabus outline does cover basic requirements and we are covering all material included. I am not at this time prepared to point out its weaknesses."

"Syllabus used only to extent required for work given. We do not follow it exactly, our course differing in that distribution of material suggested may be over a greater period of time than indicated in syllabus outline. Weakness of syllabus?"

"Our three courses in dispensing follow fairly well the Syllabus outline."

"The present Syllabus does meet our basic requirements. But the order of presenting the material cannot well follow a rigid schedule. The outline referred to is often varied so as to permit didactic instruction to parallel more closely the practical work in the laboratory."

"The outline of the Syllabus is sufficient for basic development. Exact conformance is not desirable since everyone has his own idea of when and what should be taught."

"The Syllabus outline is not followed precisely but we are satisfied that the content of our course covers all points given in the Syllabus."

"I feel that the present Syllabus outline meets the principal requirements of this course."

"The present Syllabus more than meets the basic requirements of the course. Time allotted for the course does not permit the inclusion of all the material in the outline. Our courses consist of 54 hours didactic and 72 hours laboratory while the Syllabus outline requires 64 hours didactic and 128 hours laboratory. Under the present conditions the Syllabus outline is fairly satisfactory, but it should be kept in mind that Syllabus V will probably be approved by the American Council on Pharmaceutical Education, and the minimum requirements be made mandatory. It is therefore suggested that in the revision, the contents of the outline be subdivided into two sections: (1) The minimum basic requirements (to be known by whatever title may be selected) and (2) Optional but recommended material to be used in elaborating or rounding out the course of instruction."

"I do not follow it exactly. Much of its content is covered in other courses such as "Fundamental Pharmacy," "Pharmacy Laws and Regulations," "Operative Pharmacy," "Economic Pharmacy," and "Manufacturing." The outline is too implicit; it should differentiate more especially the fields of operative and dispensing pharmacy."

"We do not follow it exactly."

"I do not follow it exactly. With my background of several years of retail and ownership experience, I feel that more time should be allowed for discussion of local dispensing problems and for personal experience teaching by the instructor. For the instructor who has not had much practical experience I feel that the present outline is adequate but as each prescription is "tailor made" I feel that sufficient time is not allowed for reading and study of original prescriptions."

"Yes, if one keeps in mind that the Syllabus is to offer a suggested outline, not a required one."

"The present syllabus outline meets our basic requirements in principle. Comparatively speaking, we do follow the syllabus. The requirements set by our State Board of Higher Education in those courses in a major field irrespective of the school or college concerned, must be offered in the junior and senior years of the respective curricula. This is a handicap and hardship to the professional schools, affiliated without State System of Higher Education. This edict is to avoid loss of credits by students who may choose to change course of study or transfer to one of the several campuses following two years of work."

"Do follow the syllabus exactly."

"We do not follow it exactly."

"In the Elementary Dispensing course the following Syllabus topics are omitted: Wrapping and Pricing because of lack of time; moreover, I regard these topics as somewhat controversial. Price schedules are discussed during Senior Advanced Dispensing. The following topics also are omitted: from Ownership of the Original Prescription (Syllabus, p. 67) to and including The Dispensing Department (p. 68) since these topics are presented in courses in Pharmaceutical Economics and/or Pharmaceutical Jurisprudence. However, we occasionally discuss some of them informally in recitation periods. Tablets are omitted from the Elementary course, but are included in Advanced Dispensing. Plasters and Poultices are omitted from the course as being obsolete in actual dispensing of today. Medicated Gauzes (Syllabus, p. 74) through to Homeopathic Pharmacy is also omitted, the last topic being reserved for Advanced Dispensing class-work, the other topics being taken care of in Bacteriology. Incompatibilities are not stressed in Elementary Dispensing."

"We do not follow it exactly."

"Present syllabus meets basic requirements. We do not follow it exactly. Weaknesses: Too broad in scope; certain preparations in outline which are seldom if ever used could be dropped; biologicals should be treated as a separate course; hospital pharmacy should be treated in a separate course. Differences: Homeopathic pharmacy not studied; biologicals not studied; law not studied; certain classes of preparations will not be studied."

"Syllabus meets our principal requirements. We follow it, but not in the order given. Weakness: It may be arranged improperly and may go into too much detail."

"The present Syllabus does meet our basic requirements. The Syllabus is followed rather closely with the exception of Plasters, Poultices, Medicated Gauzes, Sterilization, Ampuls, Biological Products and Homeopathic Pharmacy. These subjects are taken up in other courses."

"Present Syllabus fairly adequate. The text covers every item of the present Syllabus and every item of "Basic Material for a Pharmaceutical Curriculum" that has a bearing on dispensing, as well as additional material which I consider important."

"This course, being the beginning course in Prescriptions, takes up the detailed study of individual classes of prescriptions and emphasizes the importance of neatness and accuracy in the laboratory. I feel that some definite plan of order should be presented in the Syllabus outline and that each component part of the outline should be made equally complete. Perhaps the chief headings of the outline should be arranged alphabetically so that each individual teacher might take up the material in the order that best suits his originality."

"The syllabus is not followed exactly, as I feel that certain groups of preparations are overemphasized such as pills while other groups such as adjusted solutions are underemphasized."

"We comply favorably with the Syllabus."

"The present Syllabus meets most of our principal or basic requirements although we do not follow it exactly since our courses are arranged differently, even when practically all of the required material is given in the different courses. So we have a course in Pharmaceutical Latin and another in Commercial Pharmacy in which some of the material which the Syllabus includes under dispensing pharmacy is included."

"The Syllabus meets the basic requirements in Dispensing."

"The Syllabus outline meets our principal requirements; although we do not follow it in its exact order, we cover all of the material outlined in it."

Latin. Latin is still taught as a separate course by 40 per cent of the colleges reporting. Sixty per cent include whatever Latin is believed to be necessary in other courses.

The Advanced Course

Name. The problem of standardizing the name for the advanced course has been no more successfully solved than for the elementary division. Table IV shows the unsatisfactory jumbling of titles and the cause for unhappiness on the part of even the most astute registrar or dean who is called upon to evaluate their substance.

TABLE IV
Name of the Advanced Course

	Frequency of Occurrence
Dispensing Pharmacy	4
Pharmacy	4
Dispensing	2
Advanced Prescriptions	2
Dispensing and Incompatibilities	1
Advanced Dispensing Laboratory Practice	1
Special Dispensing Pharmacy	1
Advanced Dispensing	1
Advanced Prescription Practice	1
Advanced Manufacturing and Prescription Compounding	1
Advanced Operative Pharmacy	1
Prescriptions	1
Prescription Compounding	1
Prescription Practice	1

Only two-thirds of the schools reporting give more than the basic training or elementary course. Is there not enough information pertinent to dispensing to require more than one course and are therefore those which have advanced work padding the curricula, or are the deficient one-third failing to measure up to their responsibility to the profession?

Definition. I feel the advanced course is at present incapable of exact definition because its nature varies so widely within the colleges. Therefore the comments of those replying to section II (b) of the questionnaire are quoted. They best tell the story of what the advanced work is.

"Additional advanced work on the dispensing of prescriptions taking up the more difficult types of preparations and including prescription examples. The foundation built up in the two years' work covered is the basis of much of the work."

"Outline of course: Laboratory instructions and discussion of uniform procedure for receiving, filling, typing, and filling prescriptions, 2 lectures; Important synonyms and confusing drugs and chemicals, 2 lectures; review of doses, Latin terms, and weights and measures—outside work; percentage solutions on prescription problems worked outside class, 1 lecture; exempt narcotics, 1 lecture; prescription pricing, 3 lectures; leading proprietaries, 4 lectures."

"This course includes the critical study of the prescription and the practical work involved in the compounding and dispensing of a wide range of prescriptions taken from actual medical practice. Special attention is given to physical, chemical, and therapeutic incompatibilities. A large number of prescriptions are compounded, packaged, labeled, wrapped, and priced as in actual practice."

"In this course we taught the more complex dispensing techniques such as for pills, suppositories, tablets, tablet triturates, soluble elastic capsules, etc. Considerable attention is given to properly finishing the prescription and its label."

"The first quarter (11 hours lecture, 22 hours laboratory) and the second quarter (11 hours lecture and 44 hours laboratory) are devoted to incompatibilities and prescriptions which are more difficult to compound than those considered in elementary dispensing. The incompatibilities are considered from a therapeutic, pharmaceutical, and chemical viewpoint. The acid ions are first discussed, followed by important U.S.P. and N.F. products and important proprietaries as ichthyol, mercurochrome, sulfanilamide, metaphin, etc. All incompatibilities are overcome when possible and the student must determine whether or not they should be dispensed. The material given in this course is compiled from texts as Ruddiman's "Incompatibilities," Scoville's "Art of Compounding," Remington's "Practice of Pharmacy," "Encyclopedia of Modern Drugs and Therapeutic Guide," and from other literature as it becomes available. The students are instructed not to memorize the incompatibilities, but must learn to recognize them. Written and practical examinations are given. The solubilities of the more important U.S.P. and N.F. salts are required. During the spring term each student is required to bring copies of at least 20 prescriptions obtained from active prescription files. These prescriptions must be difficult to fill, demonstrate a valuable incompatibility or some useful new proprietary preferably official in N. N. R. The prescription is reflected on a screen and the student who has obtained the prescription is held responsible for all questions that might be asked by students or the instructor. Questions of pharmaceutical, chemical, therapeutic, pharmacological as well as source, etc., are asked. This particular phase of the work requires 33 hours, 11 of which are not catalogued and affords a very splendid opportunity to stress the dispensing point of view as well as teach proprietaries most widely used at that time. The students are required to take notes during these discussions and are held responsible for important phases thereof."

"Included in this course is a more detailed and extensive study of the common types of preparations. Also included is the subject of incompatibility, the subject of hospital pharmacy, and time is devoted to the study of original prescriptions."

"This is the nearest approach to an advanced course in dispensing we have. It is not a formal course, but an opportunity for students who have completed the Compounding and Dispensing course to gain added experience in the actual compounding of prescriptions. It is an elective course. The work is done in the Dispensary of the Student Health Service under the supervision of the Resident Pharmacist, on prescriptions of the staff physicians of the Student Health Service. Since this is not a formal course, many of the questions in Part II of the questionnaire will not apply."

"Continuation of elementary dispensing."

"The special objective of this course is its seriousness. It changes attitudes and develops self-dependency in each student as he realizes that his product is to be used on human beings. Another objective is the most practical and varied experience gained. Most pharmacies depend on 3 or 4 physicians for the bulk of their prescriptions whereas the staff of the Medical School is composed of physicians and specialists from all over the city. For instance, on certain days we have a "skin" clinic; on certain other days the eye, ear, nose and throat; then there is the children's clinic, surgery, O.B., pediatrics, etc. A minimum of 150 hours is spent in the Dispensary and our students receive a type of experience that would otherwise take a few years to experience in different stores. During the year many U. S. P. and N. F. preparations are manufactured also in this course for use in the clinic."

"Lecture: The dispensing pharmacist; the prescription; receiving the prescription; study of the prescription; numbering the prescription; dating; assembling the needed ingredients; filling the prescription; types of containers; labels; pricing the prescription; filing prescriptions; professional relations; the dispensing department. To this point the course follows the suggestions of the Syllabus. A consideration of the newer products of pharmaceutical importance, especially those preparations of the New and Nonofficial Remedies. Laboratory: The compounding of original prescriptions. This work, of course, includes a review and application of principles learned in previous courses, especially directed at the utilization of information concerning pharmaceutical preparations such as solutions, capsules, emulsions, sterile solutions, ointments, etc., in routine compounding of physicians' and dentists' prescriptions."

"Applying the principles learned in the Prescription Lectures course and Prescription Incompatibilities course. This course follows the Incompatibilities course. Selected prescriptions representing types actually prescribed by physicians are compounded in the laboratory. The laboratory work is supplemented by lectures on narcotics, poisons, biologics, etc. The ethics of a professional pharmacist are stressed and correlated with the various phases of courtesies to the allied professions, and the proper management and arrangement of the prescription department is considered."

"Laboratory: difficult incompatibilities, preparation of sterile solutions; clinical reagents, stains, etc. Lecture: professional pharmacies, detailing, etc."

"The best description I can give is that Advanced Dispensing includes almost anything and everything pertaining to practical dispensing (except Plasters and Sterile preparations). We attempt to teach the student all he can possibly absorb. No outlined course is followed. Students compound bona fide prescriptions obtained from drugstore files and in the physician's own writing, and learn from these. The prescriptions are so assorted and varied in type and difficulty that each student encounters a cross-section of practically all dispensing. The routine of this course is as follows: Each student is assigned a file of bona fide prescriptions in the physician's own handwriting. The prescriptions are all obtained from drugstores, are sorted, chosen because of some academic feature, incompatibility, interpretation, compounding technique, etc., which it presents. Each student copies the original prescription onto a "blank" then studies and diagnoses it, lists any incompatibilities, and writes his procedure for compounding, giving reasons or citing authority for each step of compounding. On the reverse side of the "blank" he enumerates all the ingredients present in the prescription with their physical and chemical properties. These forms are submitted to the instructor 3 days before the compounding period, and are checked for errors and omissions, are then returned to the student with appropriate written comments or revisions one day before compounding period. The student makes necessary revisions. After the "theoretical" phases have been corrected and approved, the prescription is compounded. The completed preparations are then checked for compounding accuracy and perfection of the finished product, a grade given, and the graded "blank" returned to the student, to become part of his notebook. This procedure is followed during the first semester of the Senior year. During the second semester the pre-checking of papers is omitted by the instructor—students being expected and required to apply their acquired knowledge, and integrate it into the *Art* of Compounding.

"100 Rx of all types are filled and dispensed in laboratory."

"This course is taught by a practicing pharmacist from the city. He uses prescriptions from his own and other stores in the laboratory. It is essentially a laboratory course, and is given in this fashion since we do not have access to a dispensary and feel that the course should be as practical as possible. The various classes of pharmaceutical preparations are represented by the prescriptions used in laboratory practice, i. e., ointments, lotions, powders, etc. Slides of hospital prescriptions are studied and discussed, in addition to the laboratory work."

"Thirty-two lectures are devoted to Incompatibilities the first semester of the senior year. This is paralleled by a thirty-two hour course in laboratory in the compounding of incompatible prescriptions, and by the course in Out-Patient and Hospital Dispensing which extends through both first and second semesters."

"A course which requires each enrollee to prepare materials for hospital use, usually in large quantities, but without the benefit of formula directions. The student is required to write his own directions which are subject to the approval of the instructor in charge. The same procedure is followed on some State Board examinations."

"This course includes the study of incompatibilities of all types. Pricing of prescriptions and Homeopathic pharmacy are considered. New and Nonofficial Remedies and also new preparations not accepted by the A. M. A. are studied. Isotonic solutions are studied and made in the laboratory, special care being given to eye prescriptions."

"Prescriptions involving the following classes of pharmaceutical preparations are filled: Papers, Capsules, Ointments, Emulsions, Collyria, Lotions, Mixtures, Solutions, Suppositories, Ampuls, Granular Effervescent Salts, Diagnostic Agents, Liniments, Troches, Percentage Solutions, Tablet Triturates, Pills, Soft Capsules, Petroxolins, Mouth Washes, Enemas, Sprays, Ear Drops, Dental Preparations, Veterinary Preparations, Bulk Powders, Pencils. Practical prescriptions representing the various classes of preparations are selected at random so that the students' files become more like those in a prescription pharmacy. The student studies also a number of prescriptions for proprietary preparations in the model drug store."

"An advanced laboratory study of the various methods of compounding special prescriptions and galenical preparations."

"A detailed study of the prescription and the art of compounding and dispensing with laboratory work in which the student fills prescriptions representing the various types as well as the use of various types of apparatus."

Position in Curriculum. With but three exceptions the colleges place the advanced work in the fourth year. One of these splits the course between the third and fourth years.

Class and Laboratory Hours; Length of Course. Students in the advanced work spend on the average 1.7 hours a week in class and 5.3 hours in either laboratory or hospital practice. This continues for one semester or quarter up to a full academic year.

Text. *Pharmaceutical Dispensing* by Husa and *The Art of Compounding* by Scoville and Powers are the texts in major demand.

Hospital, Dental, and Veterinary Pharmacy. Of the 18 in-

dicating the degree into which they went into the subjects of Hospital, Dental, or Veterinary pharmacy in the advanced course, 8 reported no work in any of the branches, 6 give little work, 3 devote considerable attention to hospital pharmacy and 1 spends much time on each phase.

New and Non-Official Remedies. To the question "do you have a separate course for new and non-official remedies?" 12 replied in the negative and 8 in the affirmative.

Use of Syllabus. The Syllabus outline for dispensing was of no help in organizing advanced work to two colleges, partially satisfactory for 15 colleges, and wholly satisfactory for two.

Objectives of the Advanced Course. The objectives of this work insofar as the various reporting colleges are concerned are best presented by means of the comments made by the participants of the study. The major thread throughout all the remarks is probably the desire to correlate previous information with the practical aspects of pharmacy.

"The advanced course in dispensing should be devoted to incompatibilities and in obtaining practice in reading, interpreting, and filling as many actual prescriptions as is possible."

"Objectives: Coverage of examples of types of work pertaining to actual store practice. Proficiency of manual dexterity."

"To cooperate with the Health Service Department of the University. To dispense prescriptions which are used by students of the entire University. To provide training for pharmacy students in receiving, filling, pricing, typing (labeling), filing, and wrapping prescriptions. To provide an outlet for the preparations made in "Manufacturing Pharmacy."

"In our case we list the second semester senior work as advanced dispensing, although in reality it is a continuation of the first semester's work. Incidentally it should be pointed out that the dispensing work is truly in dispensing and is not a course in manufacturing pharmacy."

"Compounding prescriptions more difficult than in elementary dispensing; Incompatibilities (recognition, methods of overcoming, determining whether or not they should be dispensed); Study up-to-date prescriptions taken from active files which demonstrate unfamiliar incompatibilities, special methods of compounding, worthwhile proprietaries, etc.; turn out a more "polished" dispenser."

"The objectives of this course are to cover the material not included in the first course, to familiarize the students with incompatibilities, original prescriptions, hospital pharmacy, and to prepare them as well as possible for the conditions they will meet after graduation. About six weeks of the laboratory work is devoted to the study and filling of original prescriptions taken from the files of drug stores. This should be included in any course in dispensing because of the similarity of the conditions encountered after graduation."

"Since this is not a formal course the objective might be stated as simply additional practice in prescription compounding, under conditions similar to actual practice in dispensing pharmacies."

"There is insufficient time to cover dispensing pharmacy in one semester. We include in the classwork during both semesters a review of the U. S. P. and N. F. and a study of N. N. R. as well as incompatibilities and prescription pricing, together with the use of dispensatories and price lists such as the Druggists Circular, Red Book, American Druggist, Merck, Mallinckrodt, Parke-Davis, Lilly, and Upjohn. Also we use the Modern Drug Encyclopedia."

"The precise objectives of the advanced course in dispensing are: 1. To impress upon the student that he must bring all the scientific knowledge and training he has to the one major problem of compounding and dispensing a prescription properly and without error. 2. To develop the professional attitude in the pharmacy student. 3. To stress the position of the pharmacist in interprofessional relationships. 4. To prepare the student to take his position as a pharmacist in the public health scheme."

"Gives the student an opportunity to become acquainted with problems which will confront him or her in actual practice and strives to perfect proficiency in technique of dispensing through practice of dispatch."

"Increase interest in professional pharmacy. Show possibilities. Provide training for detail (commercial) positions. Establish self-confidence. Fill actual need for better than average pharmacist."

"The fundamental objective is to teach the student to integrate his knowledge and the facts of physics, chemistry, materia medica, pharmacy, etc., into the ART of properly compounding prescription ingredients to prepare a final product and package that is scientifically correct, and elegant, and one which is in accordance with the desires of the prescriber, and is "safe" for the patient."

"When students finish this course they should be able to compound and dispense any and all types of Rx."

"Objectives to justify course: Experience in filling prescriptions which are actual—not textbook prescriptions and are typical of those written in this vicinity. Instruction by a capable, practicing, registered pharmacist. Must serve instead of experience in an out-patient dispensary. We feel that one course in dispensing, taught by a man whose interests and practical experience must of necessity be mostly academic does not give adequate training—hence this type of advanced course."

"According to our scheme, the students would not get adequate consideration of basic incompatibilities or of hospital dispensing without the advanced course."

"Broadens the student because of variety of problems met. Develops accuracy and honesty. Develops confidence and greatly reduces apprehension for the State Board examination."

"The advanced course in dispensing is intended to show the student all types of prescriptions, including many difficult ones. An attempt is made to present actual store conditions to the student and allow him to work out the solutions."

"In the elementary dispensing course the student learned the fundamentals concerning each class of prescriptions and filled a few prescriptions representative of those classes. In the advanced course the student applies those principles and fills a large number of representative prescriptions to develop manual dexterity and speed. New ideas and duties are constantly brought to the student's mind until he finally is operating a prescription pharmacy in our laboratory."

"Objectives: Study and understand the parts of a prescription. Study the important theoretical considerations for all types of prescriptions. Study of details for practical work in compounding and dis-

pensing. Study of all types of incompatibilities. Study of Pharmaceutical Latin. Study of actual compounding of various types of prescriptions. Attainment of laboratory technique in the filling of prescriptions."

Incompatibilities

Importance. The effort to obtain a clear-cut expression of opinion concerning the present and probable future importance of incompatibilities in prescription work was disappointing. Fifty-four per cent of the schools are on the fence and feel that incompatibilities are important in a vague general way and should be studied as in the past. Fourteen per cent were positive in the feeling that incompatibilities were more important than ever before, whereas thirty-two per cent felt quite the opposite.

Method of Instruction and Course Content. There is no general or common method of presenting the subject of incompatibilities, nor has anyone been able to compile an accepted collection of data from which all instruction would be given. Eighty-three per cent of the colleges reporting divide the subject between one or more other courses while the remaining seventeen per cent have devoted space in the curriculum for work in course. Because of the partitioning of subject matter it is not surprising that incompatibilities are very much academic orphans, allowed to develop about as they will.

Use of Syllabus. Although the majority of instructors do not have separate courses for incompatibilities choosing rather to divide the work between such subjects as qualitative analysis, pharmacy, and dispensing, quite a number of them feel there should be an outline in the new syllabus covering the field. Of the colleges without separate courses fully thirty-two per cent favor its inclusion in the syllabus. This does not mean a preponderance of dispensing opinion swings to continuance of the outline. In fact the opposite is the case for less than half of the colleges in answer to the direct question plumbed for an outline covering incompatibilities. Thirty-six per cent of those expressing a definite opinion wanted an outline and sixty-four per cent felt it wasn't necessary. A few were undecided and therefore indefinite.

Ideal Curriculum Placement for Dispensing

The fourth year was the unanimous choice for dispensing with some colleges suggesting two years of upper division

work. All argued that since dispensing is the center or pivot around which the rest of the academic structure should be draped it deserved a position where all general work would be prerequisite.

Response to the question of what could be done with dispensing given complete curriculum flexibility was surprisingly unenthusiastic. No one mentioned the addition of a fifth year or suggested any real form of curriculum modernization. Two advanced the desirability of internships and one spoke of serious work in "detailing." Ideas such as these have been given public utterance by men of standing and ought to have stimulated enough discussion to grow into strong influences in shaping future instruction. To see forward-looking ideas dropped before their practicality has been disproved is disappointing. The anticipated flood of mature comment was not forthcoming. This in the face of the need for constant thought and aggressive policies in keeping our curricula ahead of the needs of the time cannot be construed as a good sign.

Research

If there can be said to be a sour note in the picture of American Dispensing it probably is sounded by research, or rather the lack of it. Research is the epitome of modern progress. Without it a field nowadays sinks rapidly into obsolescence. There is, compared to activity in other departments, practically no graduate work in dispensing being done, or contemplated in our colleges. Why is this important responsibility so neglected?

Some of the subjects being investigated in the few schools doing this work are:

1. Dental Pharmacy
2. Prescription Surveys
3. Prescription Pricing
4. Chemical aspects of filling prescriptions
5. Ointment bases in collaboration with the department of dermatology, School of Medicine
6. pH determinations on Collyria
7. Preparation of sterile solutions
8. Preparation of a tablet formulary
9. Prescription Incompatibilities
10. Enteric coatings
11. Vehicles
12. Emulsions
13. Apparatus

Perhaps these titles will serve as a nucleus for an index of needed work. The Association of Colleges could perform a valuable service by taking official cognizance of the research inactivity and developing a remedial plan.

The Laboratory

Time Devoted and Number of Prescriptions Filled. From the statistics gathered a composite picture indicates that average students spend a two or three hour laboratory period a week for twenty-five weeks compounding 250 prescriptions. Table V presents a truer story of what is actually given in laboratory instruction.

TABLE V

Time devoted to laboratory, and number of prescriptions filled.

No. of periods during week	Length of periods in hours	Avg. No. of Rx's filled per period	Total No. filled in each course	Total Rx's filled during four years
2	3	5-6	225	225
1	3	5	100	100
2 Elem. c.	3	4	350-400	1250-1400
1-2-3 Adv. c.	Total for week 10 3.2-1 hours		900-1000	
2	3	3-4	135	135
1	4	4	180	180
2	3	5	125 first course 110 2nd course	235
1 Elem.	2	4-5	140 elem.	295
1 Adv.	—	—	145 adv.	
1 Fall qtr.	3	3-5	172	172
2 Wtr. Spr.	—	—		
3	4	7-8	50 1st course 200 2nd course	250
1	4	9.8	50 incompats.	148
		Exclusive of 2 compats. where avg. was 16.33 per week		98
1	3	5	80	80
2	3	3-5	35 in 1st crse. 65 in sec. crse.	100
2	3	6	—	—
1	3	5-7	200 3rd yr. 400 4th yr.	600
2	3	4	75	75
1	4	8	240	240
2	3	6	225 1st course 150 2nd course	375
1	3	3-4	90 1st course 130 2nd course	220

1 Elem.	3	3	50 1st course	150
2 Adv.	6	—	100 2nd course	—
1	3	—	—	—
2	2 in lab.	8	120 elem.	705
—	3 in out	8	60 incompats.	—
—	patient dept.	—	525 out patient	—
4	3½-4	4	60 elem. course	60
2	3	5	65 elem.	200
—	—	—	135 adv.	—
1 Elem.	3	2½	65 elem.	213
2 Adv.	3	3½	148 adv.	—
—	—	—	163 drug store	—
—	—	—	49 incompat.	—
2	6	8	240	240
2	2	2½	140	140
2	3	1-3	75	75
2	3	4-5	240	240
2	3	5	175	175
3	2	2-3	150	150
1.8 periods	2.6 hours	5.3 Rxs	—	250 Rx
Average composite	—	—	—	—
2 periods	3 hours	5 Rxs	—	250 Rx

Division of Prescriptions into Types. Because of inadequate data an accurate cataloguing of the types on the basis of numbers in each was impossible. Table VI represents the substance of replies from 13 schools.

TABLE VI
Division of prescriptions according to type
Number given by reporting colleges

Type	Number given by reporting colleges													
Powders														
(bulk, divided)	25	15	27	16	10	9	9	5	20	8	10	10	15	
Capsules (hard)	20	8	14	8	9	6	10	3	12					
Capsules (soft)	4	8	10	1	5									
Cachets	1	2	1	5	1									
Tablet Triturate	4	4	3	1	3	6								
C. T.	1													
Troches	4	1	1	3	4									
Pills	20	15	26	24	11	7	14	18	6	12				
Suppositories	15	10	17	11	7	8	6	10	4	14	5			
Ointments	20	6	10	6	22	11	7	15	6	10	15			
Pastes	4	5	1	2										
Emulsions	20	15	10	32	10	9	20	20	10	15	25			
Liquids	100	50	30	130	58	25	30	75	51	130	60			
Ampuls	3	5	2	1	5									
Collyria	11	8	3											
Nebula	1	10	1											
Lotions	5	10	15	12										
Gargles	3													
Miscellaneous	6	4	11	9	2	10	5	50						

Assistance in Course. The number of students each year quite naturally determines the extent of the assistance given the instructor in charge of dispensing laboratories. Ten of the colleges state that there is no assistance if classes are small, but that help is available as student bodies grow. Ten other schools always have one assistant for the instructor, and six always have more than one assistant. In the latter schools the number of instructors for the laboratory runs up to four.

The time spent in laboratory by the instructors each period depends on circumstances. Ordinarily there is always one man in attendance. Frequently the head instructor has other duties which keep him away from the laboratory during a part of each period.

Student Records. Nearly every college requires the student to keep a prescription note book in which he copies the prescription, method of compounding, doses, discussion of any incompatibility and other pertinent facts. Very few other records are kept. Table VII shows the extent of these.

TABLE VII
Other records kept by students

Records	Number of Colleges keeping them
Regular prescription file	13
Report on each prescription returned	1
Narcotic inventory	1
Exempt narcotic record	1
Poison record	1
Weekly reports of work posted to stimulate competition	1
Notebook for special prescriptions	1
Cost records on each prescription	1
Daily work sheet	1
Want book	1

Grading Methods. Because of the peculiar chemical nature of the prescription it is ordinarily impossible with our limited facilities to grade the product on a quantitative basis. In general therefore the evaluation is made on the basis of appearance of the finished prescription and the technic of the compounder. Table VIII is a list of the features most commonly appraised in this scheme.

TABLE VIII

Factors in grading prescriptions

- Appearance of material
- Appearance of package
- Appearance of label
- Appearance of bottle
- Technic in compounding
- Cleanliness
- Skill in pricing
- Accuracy of notebook description of prescription

The following are abstracted comments on grading procedure:

- Grade 1. Entered for each Rx and average at end of semester.
2. Based on relative efficiency. No individual prep grade. Penalties afflicted for carelessness, etc.
3. Top grade is 10. Deductions for* (1) lack of interpretation (2) interest (3) independence (4) carelessness, neatness, promptness (not speed), technic, labelling, packaging, pricing.
4. All grades are influenced by efficiency, neatness, cleanliness in use of balances, desk and equipment. Certain Rx's are tested qualitatively and others quantitatively.
5. Neatness, 15 per cent. Data written on form, 35 per cent. Compounded work, 50 per cent.
6. The laboratory grade is based principally on personal observation of the student at work.
7. All Rx's must be completed satisfactorily (no grade credit).

Handling of Stock. No completely satisfactory method of handling the materials for prescription use appears to have been worked out. This feature of the laboratory requires for proper efficiency an attendant whose sole responsibility is keeping stock. Administrations overlook the many tedious hours of elementary routine put in by men of professional rank in playing janitor to the stockroom division of the laboratory when their services could be put to much more effective use in technical duties. Table IX indicates various plans for making materials available to dispensing students.

TABLE IX

Stock procedures for the laboratory

Method	Number of Schools Using
Sets of stock bottles on the desk with special materials on side table or at stock room.....	23
Central stock shelves from which students may obtain their material	10
All material supplied students in individual containers	1
Tray containing ingredients for the prescriptions of the day, and in quantities enough for four students	1

Number of Prescription Ingredients Used. The number of items used in the filling of prescriptions varied from 2900 (an extreme) to 60. Leaving out the two schools using 2900 and 1000 ingredients respectively the average number of items for use in dispensing was 261.

Ingredient Cost per Student. Figures covering the cost of prescription ingredients per student were given by only 17 schools and several of these were admitted estimates. The average was \$9.27 per scholar.

Treatment of Incompatibilities. Individual comments on the handling of incompatibilities in the laboratory give the best answer to how the subject is approached from the manipulative point-of-view.

"Incompatibilities are corrected and the prescription filled properly, necessary changes being made."

"Students are required to fill some incompatible prescriptions in two or three ways; others one way, depending on type."

"By filling and correction and by correction before filling."

Elementary course: six laboratory periods devoted to them—incompatibilities on regular preparations handled as met. Advanced course: Handled as met (not many arise)."

"We have a place in the laboratory where all incompatible prescriptions are on display for students' observation."

"The student is permitted to try any method of compounding he chooses. The proper procedures are then outlined and he is then permitted to compound it correctly if he has not done so in his first attempt. Incompatible prescriptions are also discussed in the laboratory class by the professor and student opinion is solicited. These discussions are aided materially with the use of Balopticon and Lantern slides."

"Incompatibilities are handled in a variety of ways such as having part of the students compound them incorrectly with the rest compounding them correctly to show the differences. An attempt is made to teach students how to overcome individual difficulties as they arise."

"Similar to regular prescriptions but require special comments."

"Each prescription compounded is discussed with the student and any incompatibilities are noted. In the discussion the reasons for the incompatibilities are brought out and various ways and means are suggested for overcoming the incompatibilities. In case incompatibilities arise it is the student's business to ascertain the reasons therefor and to work out his own salvation to the best of his ability."

"Incompatibilities are handled by giving the students examples of the various types."

"By some actual incompatible prescriptions being assigned and also by demonstrations of incompatibilities."

"After class discussion of the particular type of incompatibilities each student is permitted to use his own method of overcoming individual prescription incompatibilities and this is followed later by a class discussion on these prescriptions."

"Selected types of Incompatibilities studied. First observe Incompatibilities in T. T.; then compound by applying remedies to overcome Incompatibilities."

"Discussions precede the compounding. Students dispense both the corrected and the incorrect prescriptions."

"Rx filled to show incompatibilities—lecture—then correct compounding."

"When difficulties are encountered by the student at the compounding desk, demonstrations are given by the instructor to illustrate a technique and its result. Sometimes a student is directed to experiment via trial-and-error until he finds the best procedure."

"Incompatibles, prescriptions will be filled, then discussed and suggested means of preventing or overcoming them."

"The students have studied them before they enter the laboratory. They know they exist. They try to overcome them."

"The student buys an outline containing the prescriptions to be filled. The prescriptions are studied before the laboratory period, and methods for overcoming the incompatibilities are prepared."

"Prescriptions containing incompatibilities are posted on the bulletin board along with the other prescriptions. Some of these are studied only and not filled. Others, the student attempts, discovers the incompatibilities, and tries to correct the difficulty."

"Mostly by filling to show the incompatibility and refilling one or two different ways to show how to overcome the difficulty."

"Mixed in with the general run of prescriptions."

"Study, references, and trial and error."

"The prescriptions discussed in lectures containing incompatibilities are oftentimes filled in the laboratory. The students are required to fill the prescription both ways illustrating the incompatibilities and the alternate method of overcoming where possible. As a simple example of pharmaceutical incompatibility we may sight the precipitation of a resin when mixed with an aqueous vehicle; this of course makes an unsightly preparation but by the use of an appropriate amount of tragacanth the precipitation of the resin becomes uniformly distributed."

"Sometimes the teacher explains the incompatibilities that exist in the prescription and the way of overcoming them. Other times the student has to detect it and then find a way of overcoming it."

"Examples of the various types of incompatibilities are given the students, as prescriptions for compounding and discussed at the same time."

"Identified, discussed, prescription filled to illustrate same where practicable, then properly filled."

Table X pictures the ratio of incompatible prescriptions to those free from this type of difficulty in reporting laboratories.

TABLE X

Ratio of Incompatible to Normal Prescriptions	
Number of prescriptions filled	Number which are incompatible
150.....	40
100.....	25
350.....	25
135.....	65
180.....	25
235.....	75
285.....	100
172.....	32
250.....	60
148.....	60
80.....	20
600.....	75
240.....	75
150.....	24
705.....	60
60.....	6
200.....	100
75.....	0
385.....	60
240.....	110
140.....	20
75.....	50
240.....	30
175.....	50
50.....	15

Equipment. Table XI gives an illuminating picture of how poorly the average laboratory is equipped for the unusual dispensing operations and shows perhaps why the technic of administering medicines has not progressed as rapidly as some other phases of medicine.

TABLE XI
Laboratory Equipment

Type	Number per College															
Suppos. molds, hand	*	†	*	50	18	†	†	†	12	6	*	4	†	†	28	55
Suppos. molds, machines	4	†	3	2	5	1	2	1	1	1	1	†	†	4	1	1
Capsule filling machines	1	1	1	4	16	4	1	1	1	1	1	3	3	1	3	1
Cachet machines	1	2	3	1	1	1	1	1	1	1	1	1	1	2	3	1
Tablet triturate molds	*	*	50	†	4	12	†	†	5	†	16	20	21	†	12	†
Compressed tablet machines	1	2	1	1	1	†	1	2	3	5	1	1	1	†	†	†
Pill machines	12	30	1	2	1	1	3	3	3	18	1	12	6			
Homogenizers or colloid mills	1	1	1	1	1	1	1	1	1	2	†	2	†	1		
Tube fillers	2	1	1	1	1											
Ointment mills	1	1	1	1	1											
Sterilizers	1	1	2	2												
Pill coating machines	1	1	1													
Powder divider	1															
Soft gelatin capsule filler	1															
Tube sealer	1															
Electric mixer	1															
Tablet hardness tester	1															
Ampul filling machines	2															

*Many

†Some

Out Patient or Hospital Practice. There is very little laboratory experience in either hospital or out-patient work available for our students. Table XII shows the lack of opportunity.

TABLE XII

Hospital or out-patient practice	
Time required	Number of colleges reporting
None	20
Varying amounts	21 hr. 48 hr. 50 hr. 18 hr. 200 hr. 40 hr. 30 hr. 5 hr. per week
Elective	4

Fate of Filled Prescriptions. Disappointing is the fate of most of the thousands of prescriptions filled in our laboratories each year. The majority of them are of necessity thrown away. Twenty-two schools make no effort whatsoever to save them. Four schools use a part for various assay courses and five schools use a very small percentage for medicines.

The Faculty

The faculty of an academic institution is considered by many educators as the most important part of the teaching plant. More thought, care, and money should therefore go toward strengthening the faculty than for equipment or buildings or grounds. In the dispensing field a picture of our faculties shows that the college heads are not overlooking this importance. Nevertheless much remains to be done, particularly in solving the problem of the instructors in dispensing who have one or more other and unrelated subjects to teach. It is poor academic economy to have one man attempt to be a good teacher in several fields. There are, of course, situations of this kind which are not subject to solution until college budgets are more generously bestowed.

	Instructors
	Assistant professors
	Associate professors
	Professors

Rank. More of the men teaching dispensing hold the rank of instructor than any other. Full professors are next in number with the group of assistant professors third and associate professors last. Figure I indicates the numerical ratio of the grades to each other.

Salary. Of the full time annual salaries reported the lowest was \$1,700 and the highest \$4,500. Salaries for each grade are not consistent in the various universities. It is not unusual for an assistant or associate professor in some schools to receive more than even the dean in others. The average of all salaries reported was \$2,770 a year. The study also indicated that the stipends paid pharmacy professors were generally on a level with those of other academic divisions.

Hours Spent in Class or Laboratory. Each member of our dispensing faculties spends an average of 6 hours per week in class and 17 hours in the laboratory or doing such things as paper work. It was not possible from the questionnaires returned to determine the true variation and division of this time between the different professorial ranks. This, however, is of small significance because two-thirds of the dispensing faculties consisted of only one man, thus no subdivision of labor was possible.

Courses Other Than Dispensing Taught. Dispensing instructors are required to carry subjects such as the following in addition to what should be their principal responsibility:

- | | |
|-------------------------------|-------------------------------------|
| 1. Pharmaceutical Assaying | 17. Proprieties |
| 2. Insecticides | 18. U. S. P. and N. F. |
| 3. Commercial Pharmacy | 19. Veterinary Pharmacy |
| 4. Operative Pharmacy | 20. Manufacturing Pharmacy |
| 5. Theory of Pharmacy | 21. Practical Microscopy |
| 6. History of Pharmacy | 22. Microscopy of Drugs |
| 7. Pharmaceutical Latin | 23. Practical Pharmacology |
| 8. Pharmaceutical Technique | 24. Pharmacological Standardization |
| 9. Senior Pharmacy | 25. Pharmacognosy |
| 10. Pharmaceutical Arithmetic | 26. Hygiene |
| 11. Accounting | 27. Urine Analysis |
| 12. Cosmetics | 28. Home Remedies |
| 13. Jurisprudence | 29. Pharmaceutical Chemistry |
| 14. Food Analysis | 30. Graduate Supervision |
| 15. Principles of Pharmacy | |
| 16. Galencial Pharmacy | |

The average number of extra courses per instructor is 2.5. *Degrees Held.* Using the highest degree reported for each faculty member table XIII was compiled.

TABLE XIII
Degrees held by dispensing faculty

Ph. D.	11
M. S.	18
B. S.	13
Ph. C.	1
Ph. G.	1
Miscellaneous degrees	
M. A.	1
Pharm. D.	5
D. Sc.	1

It is obvious that Pharmacy is maintaining a high standard of pedagogic excellence.

Years of Service. Years of service in teaching varies from 1 to 40 with an average 13.5. These years are subdivided for the average faculty man in table XIV.

TABLE XIV
History of Teaching of the Average Dispensing Instructor

Years of service in present school.....	11.5
Years of service in other schools.....	2
Total years of teaching.....	13.5
Years teaching dispensing.....	12.2

Size of Department Faculties. The size of the department faculties of the reporting schools together with their titular divisions is shown by table XV.

TABLE XV

	Size of Department Faculties										Total	
Professor	2	1	1		1	1	1	1	1	1	1	18
Associate												
Professor		1			1					1		5
Assistant												
Professor	1	2	1	1		1		1	1	1	1	12
Instructor	1	2		1	1			2	5	1		19
Assistants	2	1	1	1					1	1	1	13

Comments

The following pages contain only the thoughts of those who replied to the request for suggestions concerning the building up of dispensing, which were brought to mind as a result of answering the questionnaire. They are included

because they make an interesting, worthwhile set of observations.

"Our dispensing course is built around Pharmacy I—8 credits—and Pharm. Technology—4 credits. In our courses we try to include those things which we feel are fundamentally necessary for our graduates. We do feel, however, that our dispensing course lacks a certain amount of practical work which we are trying to bring about. In other words, we want to supplement our course with some actual prescription work either while they are in college or by an apprenticeship method—the year following college."

"As a result of my experience in teaching this course, there are a few specific observations which I can make with reference to supervision of the laboratory work.

1. For successful work the sections must be small, and the instructor and assistant must both be constantly on the alert, supervising and checking every operation.
2. Absolute accuracy must be insisted upon.
3. The time of the student must not be wasted in washing bottles, getting supplies, etc. We overcome this by having the stores department check each container before each session, and then, since we have a rotating schedule of assignments, one or more students are made responsible for one period only, for all bottle washing, keeping containers filled, errands, etc., which may be necessary, in order that the other students may be free from all such interruptions.
4. Students must be kept constantly on the alert by surprise tests, problems, etc., requiring quick thinking in emergencies. We use such devices as sudden call for antidotes in poison cases, first aid procedures, special arithmetical calculations, identification tests, incompatible mixtures, etc.
5. By stimulating a competitive spirit in the laboratory, little difficulty is experienced in getting students to give their best efforts. We encourage this by weekly postings of the record of all students, both from week to week, and the accumulating record throughout the course.
6. If the instruction in prescription incompatibilities is to serve any useful purpose, it must precede the regular instruction, rather than follow it. Otherwise how may it be applied in the dispensing work?"

"We have placed special emphasis on checking for dosage and various types of incompatibilities—correct method of filling, correct packaging and pricing. Suggestions are made as to how the pharmacist may render services to public and public health profession and proper approach."

"It is unfortunate that the academic phase of pharmacy is being investigated and aided by intelligent planning on the part of the teachers without similar intelligent cooperation from the retail pharmacists. The job cannot be completed by the efforts of one group alone."

"One important question in regard to the qualifications of the instructor in dispensing pharmacy seems to have been omitted. "What amount of actual store experience in filling prescriptions has he had?"

"Most hospital practice is overrated. Some controlled dispensing for actual patients seems imperative (e. g. internship

during senior year under joint direction of Sc. and Board Control to be in hands of the school).

"I am convinced that it is up to the colleges to instill and nurture a wholesome and active respect for compounding and dispensing. If they do not, who will? Dispensing should occupy such a large part of the students' time, all other courses whatever their value per se should be so well integrated, as to emphasize their relation and contribution toward prescription compounding, and to impress the student that they are all just means to the ultimate art and science of compounding. As colleges changed from the 2-year to the 3-year, then the 4-year curricula, has class time in dispensing been increased proportionally?

"Prescription-pricing discussions are as potentially explosive as an argument about politics or religion. Our students work in stores where, for the most part, the price of a prescription is estimated, guessed at, or priced a little below what other druggists are suspected of charging. On our senior files we have prescriptions which were priced (by the druggist who dispensed them) below actual cost as of date of filling. I contend that the average druggist does not respect himself nor his profession sufficiently to make adequate charges for his services, knowledge, responsibilities, and materials. Colleges can do much to make students conscious of their professionalism and to realize that it is only honest, just, and their duty to themselves and their profession to charge properly for their compounding services. We discuss prices as we find them, also discuss various price schedules which appear from time to time. However, I limit my instruction to teaching students how to calculate the *actual cost* of the materials and containers of each prescription so that they will have the essential basis for any sensible pricing schedule. We arbitrarily charge \$1.00 per hour for compounding time.

"I feel, too, that pharmacy students are not sufficiently impressed by courses of instruction that are based on "synthetic" prescriptions, nor by those which are destined solely for the instructor's desk then the drain pipe. In many institutions having a student health department dispensary, it is often complained that the experience derived is limited to compounding prescriptions written by staff physicians who, in remarkably short time, narrow their prescribing to a limited number of standardized combinations—these eventually being made up in large quantities, with the result that dispensing them merely amounts to pouring or counting the prescribed number of doses. At this college we not only use bona fide prescriptions for compounding exercises, but also make use of film-slide projection of photographed bona fide prescriptions as basis for oral discussion. I think every pharmacy school should have a file of such film-slides to augment their course in dispensing and to give their students contact with the variety of chirography and of drug combinations met with in actual practice."

It seems that dispensing pharmacy is one of the weaknesses of pharmaceutical training, if one is to believe the comments of state board members and pharmacists who employ pharmacy graduates. To remedy this the following points might be considered:

(a) Revision of Syllabus—weed out some of the "dead wood,"

make it more specific, and find some method of standardizing the courses.

- (b) More laboratory work (advanced classes).
- (c) More careful selection of prescriptions used in laboratory.
- (d) Course in hospital pharmacy.
- (e) Course in biological products.
- (f) Practicing pharmacist in charge of advanced course.

"The questionnaire is quite complete. The art of dispensing is largely a matter of practice and experience. It is our opinion that the college is too short to acquire much of either. After graduation there is much to be learned and it will take several years to finish up a competent prescriptionist. Sometimes we doubt if some graduates will ever develop into "all around" "jam up" good prescriptionists."

"Our prescriptions and dispensing course now does not devote much attention to specialties trademarked by drug houses as we have a required course entitled New Remedies in which the most commonly used preparations of this type are discussed (400 or 500 of them) and the history and development of the more important ethical drug manufacturers is covered. Biologicals, serums, and vaccines are covered by the pharmacology department in a separate course; I can see no justification for including the manufacture of serums in prescriptions and dispensing."

"The only added suggestion I would have would be to have an internship after graduation, so that the students would have actual practice in hospital or dispensing pharmacies."

"In the courses in dispensing pharmacy, the faculty points out some of the advantages of compounding prescriptions from ingredients (drugs and chemicals) which are official in the U. S. P. and N. F., and many of the laboratory prescriptions for compounding are written to illustrate this point to the students."

"By reading through the various catalogs of the member colleges, one may conclude that in a sense all the courses in dispensing are basically similar. On the other hand a study of the questions I through VII of this questionnaire would indicate that they are quite unlike. In my opinion, it does not seem likely that a uniform course can be outlined that will be adaptable to all institutions. Factors influencing our courses are state laws and practices of the local medical groups. The trends in the uses of proprietary preparations in place of written prescriptions is an important factor to be considered in the outlining of future courses in dispensing."

Officers-Elect for 1940-1941 of the American Pharmaceutical Association

President—Charles Hall Evans.

First Vice President—H. A. K. Whitney.

Second Vice President—Henry Gregg, Jr.

Members of the Council—F. J. Cermak, H. A. B. Dunning and
C. B. Jordan.

The officers will be installed at the next annual meeting of the Association, which will be held at Richmond, Virginia in May 1940.

EDITORIALS

A Message from the President-Elect of the American Pharmaceutical Association

To the members of the American Association of Colleges of Pharmacy I bring greetings, and wish to express to you my deep appreciation for the great honor just bestowed upon me in my election to the presidency of the American Pharmaceutical Association for the year 1940-41.

My experience over a period of 25 years in state associations and board of pharmacy work, together with my contacts with the members of the American Association of Colleges of Pharmacy in joint National Association of Boards of Pharmacy executive committee service have enabled me to get a clear picture of some of the problems confronting American pharmacy today.

I feel that the American Journal of Pharmaceutical Education will continue to exert a very vital and definite influence in the future upon pharmacy. I realize that this influence has been far reaching in the past, yet the surface has only been scratched insofar as some groups making up American pharmacy are concerned. The rank and file of retail pharmacy knows too little of the scope of this work. There are several reasons for this apparent lack of understanding on the part of this group.

As yet I have not had time to formulate complete plans since my election as President of the American Pharmaceutical Association, yet I wish to state now that it shall be my desire to bring about a closer understanding among retail pharmacists and board members, of the changes which pharmaceutical education is now undergoing.

If retail pharmacy is to keep step, pharmacists must have a broader conception of trends in pharmaceutical education and be prepared to take a stand and lift their voice in matters affecting a cooperative understanding of problems of boards and colleges.

As we round out another decade and set sail in 1940 I wish to enlist the support of my friends among the membership of

the American Association of Colleges of Pharmacy in co-operating with me in bringing about this understanding in the hope that with the work already done as a foundation we can continue to build and that more and more retail pharmacists may see our good work and enlist as members in the American Pharmaceutical Association.

CHARLES HALL EVANS, President-Elect.

Food, Drug and Cosmetic Legislation

It is indeed interesting to those of us who have followed the course of Food, Drug and Cosmetic Legislation from the introduction of S1944 some five years ago to the passage of S5 in '38 to observe what appears to be whole-hearted cooperation which the manufacturers are giving the Food and Drug Administration in seeing that the new law gets off to a good start on January 1st.

Dan Rennick in the December 11th issue of *Drug Topics* gives us this heartening information:

"With the January 1 deadline drawing closer, the *Drug Topics* study reveals that exactly 92.6 per cent of all pharmaceuticals, packaged medicines, and cosmetic products now being shipped by manufacturers carry new labels designed in conformity with the national law.

Moreover, it is estimated by manufacturers that 84.2 per cent of the medicines, pharmaceuticals and cosmetics on drug store shelves will bear new labels by January 1.

Of the manufacturers who participated in the *Drug Topics* investigation, 59.7 per cent make proprietaries, 23.9 per cent make pharmaceuticals, and 16.4 per cent make cosmetics and toilet articles.

Exactly 88.5 per cent of these manufacturers report that, as of December 1, all products in their lines were being shipped with new labels."

Dr. James F. Hoge, attorney for the Proprietary Association of America in his address at the annual meeting of that organization in May 1939, closed with these most significant observations about the new conditions which his constituency must face as the new law goes into effect:

"This law and the movement of which it is but one and the official part, is big enough for that. It is bigger than

any man or any group of men in the government or in industry. Painful at times, yes, but change and progress are nearly always painful, and, mistake it not, we are confronted with progress. We are entering a new era with respect to proprietary medicines. Necessarily and properly, there must be some wreckage along the way. Some ways of doing business, yes, some products, and, unfortunately, some companies are going to meet their demise as this new era progresses. But it will be a healthier and a happier world for those who are left both in the industry and among the public.

I bid you therefore be not afraid of this thing. Be of good cheer. Be of strong heart. Young men are coming into this industry. I bid you welcome them. Young men in executive, legal and scientific departments of these businesses—I have seen them, have worked with them. They have perspective. The future belongs to them. The future belongs to their approach, to their outlook, to their perspective. Yes, the future of this industry belongs to them. They do not tolerate the torch-light advertisement or the carnival sale of medicines. They believe in the laboratory and in scientific research.

Finally, I affirm anew my faith. It is good to do that, to do that now when there have been evidences of bureaucratic excesses, when there is much confusion and uncertainty, when the responsibility of compliance with the new law lies acutely and ominously on all of us. I affirm my faith that the economic position and the long-range prosperity of this industry depend upon an increase in its dignity, in its character born of restraint, in its responsibility to the mandate of social service, in its justification by honest merchandising of quality merchandise. A parade is passing. On perspective depends whether one marches in it or watches it go by."

That the American Association of Colleges of Pharmacy was the pioneer among the National Organizations in Pharmacy in fostering this legislation from the very first is not only a matter that we should be definitely proud of but also will be regarded by the future historians of pharmacy as a high spot in constructive effort of this organization.

Wortley F. Rudd
School of Pharmacy, Medical College of Virginia.

Conventions

To comment upon conventions is a critical undertaking, especially when they are of such magnitude as those of the American Pharmaceutical Association and the allied organizations. Such comments, to justify their existence, should seek to evaluate features, both good and bad, especially the latter, for the purpose of their correction and elimination, and to this might be added constructive suggestions for the introduction of new features. The program of the American Pharmaceutical Association is so varied and extensive that to comment fairly upon it is too much for one man. The final criterion of evaluation is of course the gains experienced by attending such conventions, or conversely, and perhaps more to the point, the losses experienced by not attending. The question can not be answered from an individualistic point of view. It must be considered from the point of total gains experienced by the majority. These may vary greatly from the majority reaction toward many points of the program.

Program committees must give much thought and effort to their work planning not for flashy transitory effects, but for slow, continuous, substantial gains, the benefits of which many of us are slow in sensing, and perhaps frequently miss altogether. As a result we often fall short in our appreciation of the "after-effects" of the convention. The convention committee, therefore, faces a problem of planning programs, not always according to what the majority may want, but according to what the majority needs. It requires courage to pursue a policy, because an undue amount of criticism is certain to follow.

No attempt is made here to cover up committee weaknesses. They exist in all fields and should be pointed out. Frequently it is possible to counter-act such mistakes, at least in part, by injecting oneself more forcefully into that particular part of the program. The saying that, what one gets out of a thing depends on how much one puts into it, seems peculiarly applicable to conventions. Because of their exclusiveness, programs for pharmaceutical conventions, especially on the scale of the Atlanta meeting are, no doubt, among the most difficult to arrange. They must devote themselves to an unusual variety of topics, legal, social, commercial, professional, educational and scientific, each with numerous sub-branches, an assign-

ment destined to test the ingenuity of any convention, and draw forth the criticism that conventions tend to become too conventional.

There are three divisions or phases to a committee: 1, the executive phase, consisting of the business of the Association including the report of committees, 2, the expository phase, consisting of lectures, discussions, and exhibits, 3, the social phase, including banquets and entertainment features. The criticisms often heard are that committee reports take up too much time and are unduly burdensome, merits some support perhaps, even though this phase is basic for the welfare of the entire organization. But even so, a uniform minimum time limit should not be set on such reports, as is the custom in the American Association of Colleges of Pharmacy, but I would insist that the length of the report be proportional to the importance of the subject in hand. In many cases a summarized report would be sufficient, and in other cases a more detailed and lengthy one might be not only desirable but necessary, even if a minimum time is set, provision should be made for flexibility. At Atlanta, the expository phase seemed well above the average, but I think it could be improved by becoming more controversial. Discussions on some of the papers were too brief, in fact cut short due to a lack of time. The remedy, of course, is fewer papers and more discussion; but this suggestion is in itself subject to a "controversial" consideration. The fact remains, however, that here is one place the listener has the opportunity to get more by expending himself more.

One procedure resorted to by some speakers deserves special recognition and commendation; that of distributing to the listeners mimeographed outlines of the topic discussed. The effectiveness and usefulness of this method appears so great that the question arises whether it would not be well to suggest, if not actually request, that it be adopted more generally.

Simon Benson, Ferris Institute

Hospital Pharmacy Moves Forward

A review of conditions existing in hospital pharmacy might be in order now that our convention for 1939 is history and we are fairly certain that our ideas are not overhanging enthusiasm.

The attendance and interest of the third annual meeting of the hospital sub-section held at Atlanta gave renewed assurance that the hospital pharmacists are definitely interested in furthering their division of pharmacy. This is in contrast to the response received several years ago when an attempt was made to organize and establish a place for the hospital pharmacists.

There are four groups of individuals vitally concerned in the work of hospital pharmacy—first, those individuals who select this field for their life's work; second, the teachers of pharmacy; third, the physicians and medical staffs of the hospitals and fourth, the administrative officers of the hospitals. Until such time as those men and women employed as hospital pharmacists choose to further their own division nothing could be done. Now that this is taking place, we as teachers of pharmacy must critically analyze the needs of this division of pharmacy. It is my opinion that the colleges of pharmacy should if at all possible make a connection with an approved hospital for the purpose of giving their students a first hand picture of the type of service which must be rendered by a hospital pharmacist. I realize that this in many schools is an addition to an already overcrowded curriculum, but if a minimum amount of such training can be inserted it will serve as an introduction and possibly as a stimulus to those students so inclined.

Acclimatization is a factor which ranks with mastery of medical terminology, bulk preparation of sterile solutions for intravenous use, large scale manufacturing technique, proper methods of bulk storage, methods for reduced drug costs, knowledge of the newer products, increased knowledge in the field of endocrines and bio-chemistry in general, simplified yet safe and adequate methods of dispensing drugs and medicines, all are essential. Last but in no sense the least, a development of confidence which will reflect a specialized professional ability is absolutely imperative. It does not appear possible that all of the demands made on our students entering the hospital field can be adequately supplied them in the regular four year course. The smaller the hospital the more diversified the demands. Some of the pharmacists are called upon to direct and handle the X-ray work, others must make all routine pathological analyses. It is such demands which call for a broadening of subject matter for these people.

From the standpoint of the medical staff the average graduate of pharmacy is adequately equipped to handle all pharmaceutical problems arising in any hospital. From the angle of the administrators it is essential that we impress them to the extent that they cease to view the pharmacist as a member of the technical staff and place him where he belongs as a member of the professional staff.

Expressions most frequently heard from those of our people engaged in hospital work is the reference to the small remuneration received for their services. All of us agree this is a matter of exceeding importance. Advancement in our standards of pharmaceutical education are slowly making an in-road on this situation. Let us still further increase the qualifications of our pharmacists so the administrative officers will listen if properly approached.

Louis C. Zopf, State University of Iowa

Dr. Justin L. Powers, New National Formulary Chairman and Laboratory Director

Dr. Justin L. Powers of Ann Arbor, Michigan, was elected to this combined position by the Council of the American Pharmaceutical Association at its semi-annual meeting in Washington on December 3, 1939, upon the recommendation of a committee appointed at the Atlanta meeting to select a candidate for the position. He succeeds Dr. E. N. Gathercoal who has been Chairman of the National Formulary Committee since 1929 and Director of the Laboratory since it was established in 1935, and who requested to be relieved when the other members of the Committee on National Formulary were elected last August. Dr. Gathercoal will continue in an advisory capacity until after the American Pharmaceutical Association meeting at Richmond in May. Dr. Powers is well qualified both by training and experience for these positions. He will give his full time to the work and will have his headquarters in the American Institute of Pharmacy in Washington, after March 1, 1940. This election marks another step in the Association's program to set up the most efficient organization possible for the revision of the National Formulary and for the direction of the Laboratory.

THE EDITOR'S PAGE

In this issue is printed a list of colleges that have been inspected and accredited by the American Council on Pharmaceutical Education. These colleges conform at least to the minimal requirements laid down by the Council for the accreditation of pharmaceutical educational institutions. It should be remembered that the requirements were not arbitrarily fixed by the Council. They were the result of the greater part of a decade of conscientious study on the part of the Council, of the pharmaceutical teaching institutions of this country and the needs of pharmaceutical practice. The study was not made independently by the Council, but in collaboration with the deans and the faculties of the colleges, the boards of pharmacy, and representative men in the profession. Every effort was made to be fair, to give everyone an opportunity for expression and to obtain honest information. These standards were not adopted as final until all parties concerned had agreed that they represented standards that an institution should meet in order to give adequate instruction for the training of the modern pharmacist. The determination of standards was a more monumental task than the measuring of schools by the standards after they had been determined. The work of the Council marks the beginning of a new era in pharmaceutical education and educators and practitioners of pharmacy alike owe a debt of gratitude to Dean A. G. DuMez in whose mind the Council was born and to the members of the Council who have given so freely of their time and energy in carrying the work to the present status.

On many occasions the Editor has expressed his belief in the efficiency of the American Council on Pharmaceutical Education in the field of education. He has always held that its chief function was educational and not a police power, although he admits the Council must have the latter or the former would be ineffective. On one occasion he said that when the Council visited his school if it did not give him help, he would be the first to say its efforts were a failure. And that is just what actually did not happen. Within six

months after the visit of the Council's representatives to the University of Nebraska a fundamental and necessary change in organization was accomplished as a result of the visit, which we had not been able to bring about in the thirty-one years of effort previous to that time because of the narrowness of vision and personal selfishness of certain influential men on the campus. In this connection one should read, *Pharmaceutical Education on the March*, also printed in this issue, and note the tremendous changes which are being made in the way of new courses, increased equipment, additions to libraries, increase in faculty personnel and the blossoming of new ideas, a large part of which is due to the stimulus which the Council has brought to our institutions. And perhaps the finest thing about it all is the excellent cooperation which has been given the Council in its work by all of these institutions, not only by the faculties but by the administrative units. Out of this will come a camaraderie and unity of purpose that will continue to keep pharmaceutical education on the march.

The Board of Trustees of the United States Pharmacopoeia has recently issued two brochures, one being an informative statement about the United States Pharmacopoeia—and the other a financial statement concerning the receipts and expenses of the first nine years of the United States Pharmacopoeial decennial period from April 15, 1930 to April 30, 1939. We would like to print these reports but our space is limited and as they seem to have been distributed widely, and have been or will be printed in other widely circulated journals, we think it is hardly necessary to repeat them here. The Board of Trustees is to be commended for their effort although some feel it is somewhat belated. If it is a good thing to make Pharmacopoeial revision a continuous process and issue frequent supplements, it would seem an equally good thing to issue frequent financial statements showing where the money comes from and to whom it goes and for what purpose. At least, there would then be nothing to disturb the brotherly love and the fine fellowship at any future Pharmacopoeial breakfast. The Editor believes more satisfaction would have been felt if the expenditures had been given in greater detail so as to make clear the services ren-

dered by each recipient of an honorarium. The report of the treasurer of the American Pharmaceutical Association in the November 1939 number of the *Journal of the American Pharmaceutical Association* sets an ideal that might well be aimed at by all treasurers including those brethren who hold such positions in the Presbyterian Church.

On another page will be found the program, the abstract of papers presented, and a list of those who attended the meeting of the Subsection on Pharmacy of the American Association for the Advancement of Science at Columbus, Ohio, December 27, 1939. Dr. Jenkins and Deans Rudd and Spease, who are responsible for the program and the men who took part in it, are to be commended for the excellency of the program presented. A sense of satisfaction comes over those of us who have followed the work of this section since its establishment and who have seen its work grow in interest and influence. The work of this section has been one of the most influential factors in giving pharmacy a dignified place among that great group of men who are working for the advancement of science. Especially to be commended are those men, who at their own expense, contributed to the program of this section. Pharmacy as a whole owes them a debt of gratitude—May their kind continue to multiply through the years.

The December 23rd number of the *Journal of the American Medical Association* carries an editorial entitled the *Physician and the Pharmacopoeia* in which the writer calls attention to the fact that—

"The *Journal* has on previous occasions criticised the machinery for the production of the *Pharmacopoeia*, pointing out that the decennial convention has been controlled unduly by the pharmaceutical interests. * * * Medicine has not received its just representation because fewer physicians than pharmaceutical representatives have been appointed for the decennial convention. While it is true that each incorporated state medical association and each incorporated medical college and each medical school connected with an incorporated college or university is entitled to send three delegates to the *Pharmacopoeial Convention*, state medical societies, and medical colleges hesitate to incur the expense of sending three delegates. For that reason the Board of Trustees of the American Medical Association, the Council on Phar-

macy and Chemistry and the Journal have suggested that the evils of onesided representation could be corrected if only one vote was recorded for an organization. * * * In its cooperation the medical profession must meet the reasonable demands set forth previously, particularly, proper representation and the determination of the therapeutic scope of the Pharmacopoeia, * * * Because of an outworn provision only persons who attend the decennial convention are eligible for membership on the Revision Committee. This stipulation should be kept in mind in the selection of proper representatives.

In the 1930 convention only three states had full representation, and half of the state medical societies did not have representatives. Medical schools did better; twelve sent three delegates each, but forty schools were represented by only seventy-one representatives instead of the 120 to which they were entitled. Other medical schools failed to send delegates. If this situation is repeated in 1940, the Pharmacopoeial method of procedure may again fail to be revised to meet the difficult issues which have developed."

The Editor has always felt sympathetic toward the attitude of the medical group in matters that have to do with revision. The lack of proper medical representation at the Pharmacopoeial Convention is stated in the last paragraph to be one of expense. But it is no more expensive for medical schools and medical associations to send a full complement of delegates to the convention than it is for pharmacy schools and pharmaceutical associations to do so. Lack of representation on the part of any eligible incorporated organization is due to its own neglect. We do stand wholeheartedly by the medical profession in their demands for proper representation and the determination of the scope of the Pharmacopoeia. It is beyond the comprehension of any thoughtful pharmacist to see how anyone could expect the members of the medical profession to use any code of drugs that they do not have a major part in creating along the lines they have suggested. It is a good omen when the medical profession shows the interest in Pharmacopoeial revision it is now giving to it. If this interest is continued through the years we will have a better and a more useful Pharmacopoeia. There are many who believe that the Pharmacopoeia needs a lot of new blood in its makers, just as many schools and colleges need a lot of new blood in their faculties. And further, for the good of the Pharmacopoeia, there are many who believe that the elimination of nepotism would have a wholesome effect upon the making and the control of the Pharmacopoeia as it has had upon the efficiency of teaching and administration in our western universities.

The announcement of the vote for the officers of the American Pharmaceutical Association has been received with universal satisfaction. On the editorial page will be found a message from President Charles H. Evans to the members of this Association. Mr. Evans represents the finest idealism in pharmacy coupled with the finest idealism of Georgia and the great Southland. During his term of service he will be the pivotal vertebra of the backbone of American pharmacy and with such leadership there can be no question as to the progress pharmacy will make in his time. We assure you Mr. President, the support of the American Association of Colleges of Pharmacy in the promotion of your program.

When the weary traveler, whether he crossed the State of Oklahoma from the north, the east, the south, or the west, passed through Norman he found rest and cheer and food for both body and mind at the D. B. R. Johnson home. With her own hand Mrs. Johnson ministered to our physical needs. With her own hand she turned the pancakes on the griddle and toasted the bacon to a lovely crispness and all the time you had to struggle to hold your own with an intellect as keen as a razor and as refreshing to the soul as the April showers are to the early flowers of spring. We share with the husband and son the lonesomeness which is theirs and the hope that is theirs that we shall meet again.

Few men in American pharmacy have the record of having seen forty groups of college students pass across the stage and enter the maelstrom of human activity. Such was the privilege of Dean Laird Joseph Stabler of the University of Southern California. Few men have accomplished so much as he in living an unassuming but forceful life. We shall remember him as one who did great things for his university, his state, and the nation by instilling into the lives of his students and colleagues those virtues which make men great. Dean Stabler will be a teacher of students at the University of Southern California long after the buildings he built are gone.

Rufus A. Lyman.

GLEANINGS FROM THE EDITOR'S MAIL

My sincere congratulations on your frank editorial article entitled "The Menace of Deans to Pharmacy." My only comment is that apparently such activities do not interfere with preferment in the matter of committee appointments, or the holding of official positions.

Mr. Moulton's experience with deans has been particularly unfortunate and I sincerely hope that he will not judge all by the two he mentions, especially those in my state. I hope that you and others in parts of the country removed from New York will not take these instances as typical.

CHARLES W. BALLARD,
Columbia University

November 22, 1939

I just received your interesting Journal (October number) and have read most of same, and as usual enjoyed it very much. In this issue I especially enjoyed the article by John Grover Beard of the School of Pharmacy of North Carolina, as I think he dealt with the problem quite realistically and there should be more articles along this line.

You are doing a most excellent job in the editing of this Journal and performing a real service for the profession of pharmacy. I hope I may be able to see that you get a few more subscriptions from Minnesota.

Enclosed you will find a couple of bulletins (Respect for Pharmacy Laws Begins at Home. With Privilege, Responsibility.) that may be of interest to you. We are sending these to every drug store in Minnesota. I noticed that Secretary Linn Jones of the Oregon Board of Pharmacy is sending out a bulletin along the same line of thought to the druggists of Oregon. I believe there is some possibility in aiding and raising the standards in pharmacy by making the rank and file of pharmacists more pharmacy law conscious through bulletins dealing with the advantages of the observance of pharmacy laws.

EDWARD J. PROCHASKA, Secretary
Minnesota Board of Pharmacy

November 20, 1939

Inasmuch as it has been our desire to supply to the libraries of every college of pharmacy in the country copies of the American Professional Pharmacist, may we ask that you be so kind as to publish in your journal the announcement that those librarians who do not at present receive this journal may do so gratis in the future by simply writing to us at the editorial offices, 95 Nassau Street, New York.

JOHN N. McDONNELL, Editor

November 10, 1939

I am enclosing the manuscript of my study of pharmacy journals, which you said you would like to run in the January 1940 number of the American Journal of Pharmaceutical Education. In writing this up I have tried to make the list stand pretty much alone without many critical comments. Toward the end of the article you will note that I recommend a further study to find out if these journals are used in the same way

they are rated. I hope that your Association will be interested in sponsoring this study.

RALPH E. ELLSWORTH, Director of Libraries
University of Colorado

November 9, 1939

To say that I am interested in your article 'The Perfect Curriculum' appearing in the current issue of *Modern Pharmacy*, is not sufficiently emphatic.

I have maintained for some considerable time that some changes were absolutely necessary in the curricula of some of the schools of pharmacy, Texas's included. I think that there should be some sort of a selective division maintained in several of the branches, that the student who desires to be a "home town druggist" would not of necessity be forced to take the research man's part; rather that he be given a more thorough training in store management and retail salesmanship. It appears to me that it is self evident that these recent graduates are not well founded to the extent that their services are an asset to the usual run of the mill druggists. I say this, by the way, with the deepest sympathy and understanding for the recent graduate. They surely have my greatest concern. Would you honor me with a reply commenting upon the merits, if any, of this idea?
Livingston, Texas.

R. L. WILSON
Texas Board of Pharmacy

December 3, 1939

I am enclosing herewith a check for \$2.00 in payment of my subscription for 1940 to the *American Journal of Pharmaceutical Education*. I find each number of the *Journal* of increasing interest, and I am sorry to read from Dean Lyman's statement that the subscription list from colleges of pharmacy is not up to 400.

HOWARD B. LEWIS
University of Michigan

November 11, 1939

My thought in connection with organizing the pharmaceutical press of the country is not a new club or society, but as a committee in an existing organization. This could hardly operate under the, or through the *American Journal of Pharmaceutical Education* as that is the organ of the pharmacy colleges.

I think it was Rodman of the *Druggists Circular* who said it could not be done i.e. organize pharmacy editors, or was it McDonnell of the *American Professional Pharmacy*? The statement was that too many editors are not pharmacists and have no pharmacy background. They could as easily (or as well) edit a journal on electricity, hardware or anything.

The answer to that is a membership restricted to a list of requirements by which only pharmaceutically trained men would be eligible and yet why eliminate the very persons who most need a personal contact with real pharmacists, who in their editorial capacity can best select just what should make up the proper copy. I am sure there is room for improvement in our pharmacy press. Added to this as a means of im-

pressing "the industry" as a whole by uniform presentation in any one month, we should have a center for newspaper releases. They should be planned, studied and organized as to subject and date of release to a hand picked list of newspapers of value that will carry a vital message on medicine and pharmacy to an influential clientele.

FRANK B. KIRBY, Director of Education
The Abbott Laboratories

November 30, 1939

A Pharmaceutical Opportunity in China

Dr. E. N. Meuser of the West China Union University at Chengtu, was invited by the head of the Central Government Health Administration at the suggestion of Madame Chiang Kai Shek, to come to Chungking, the provisional Capital of China, to discuss ways and means of meeting the urgent needs for drugs and medicine in China in view of present hostilities in that country. As a result of these conferences the International Red Cross Committee and the New Life Movement (through Madame Chiang Kai Shek) have granted financial assistance to the Department of Pharmacy of the West China Union University toward equipment, machinery, botanic gardens, staff and maintenance, in order that the institution may be able to cooperate in rendering service to China in this her great hour of need. As a result the Department of Pharmacy has been reorganized by establishing three main divisions, namely, the Division of Curricular Studies, the Division of Research in Crude Drugs, and the Division of Experimental Manufacture of Drugs and Medicines. The Division of Research and Manufacture have already begun work under the name,—West China Pharmacal Laboratories, and the prospects are that this project will develop into a substantial manufacturing and distributing plant in West China. There is a great need for a building for the development of the Division of Curricular Studies (which is the School of Pharmacy). Because of the present favorable rate of exchange \$7,000 will be the equivalent of \$20,000 in China. This sum would take care of the present building needs. To those who wish to help in this worthy cause, a bank draft may be purchased at your bank, payable through the Bank of China, Chengtu, China, either to the Bursar of the West China Union University, Chengtu, or to Dr. E. N. Meuser.

All in the Family

PETER ALEXANDER JANNKE,—Born December 12, 1939, son of Dr. and Mrs. Paul J. Jannke, College of Pharmacy, University of Nebraska.

LUANA CLAYTON,—Born July 12, 1939, daughter of Professor and Mrs. R. P. Clayton, College of Pharmacy, University of Idaho.

FLORENCE ELIZABETH HUGHES,—Born November 30, 1939, daughter of Dr. and Mrs. R. D. Hughes, School of Pharmacy, Medical College of Virginia.

ELIZABETH VANKAT,—Born September 13, 1939, daughter of Mr. and Mrs. J. A. VanKat, Eau Claire, Wisconsin, granddaughter of Dr. and Mrs. R. A. Lyman, College of Pharmacy, University of Nebraska.

NOTES AND NEWS

The student branch of the American Pharmaceutical Association at the Louisville College of Pharmacy sponsored a Pharmacy Week window in one of the most prominent Louisville banks and gave radio broadcasts over two different stations.

The School of Pharmacy at the University of Georgia, after extensive repairs and remodeling has moved into its new quarters. The new setup is entirely adequate for present needs.

The College of Pharmacy of Ohio State University was recently notified of being awarded a sum of money for research equipment. This comes from the Ohio State University Development Fund. The goal of \$75,000.00 in subscriptions set for 1939 has nearly been reached. Formal initiation and reinstallation of Kappa Epsilon on the campus of Ohio State University was held on December 6, 1939. Mrs. Louise Hunkins, the national president, and Miss Gertrude Horsch, national vice president of Kappa Epsilon, were in charge of the initiation. Mrs. B. V. Christensen was selected as counsellor to the organization. On October 25, 1939, a banquet sponsored by Central Ohio Pharmacists' Association, was held at the Faculty Club of Ohio State University, to welcome Dean and Mrs. B. V. Christensen. Dean Emeritus C. A. Dye acted as toastmaster. More than one hundred guests were present. The Rho Chi Society carried on an active publicity campaign urging all Columbus pharmacists to attend the annual meeting of the Pharmacy Section of the American Association for the Advancement of Science held in Columbus on December 27, 1939.

A new feature of the course in Drug Store Management given at the University of Oklahoma, is a series of lectures by retail druggists of the city of Norman, on the general subject "The Operation of a Retail Pharmacy." Those who have spoken so far are Henry Eischeid, B. E. Massey and Verble Self. On October 17, Miss Ina Griffith of the School of Pharmacy, addressed the Philomathic Club of Anadarko on the subject "Will Our Health Be Better Protected by the New Food, Drug, and Cosmetic Act?" Robert Cates, pharmacist of Atoka, has been appointed food, drug, and sanitary inspector for thirteen counties in south eastern Oklahoma by the State Health Commission.

The University of Texas Pharmaceutical Association has 236 paid members out of a total of 292 students registered in the College of Pharmacy. The average attendance at the meetings of the Association is 140.

Dr. George F. Reddish of the St. Louis College of Pharmacy is making a study in which he is trying to develop a method for testing the germ killing power of the so-called antiseptic chewing gums.

Joseph A. Bianculli and Walter S. Leskowitz have recently been named graduate assistants in chemistry in the Pittsburgh College of Pharmacy and Howard H. Fricke, Timothy A. Lucum, and Louis A. Wilson have been appointed graduate assistants in pharmacy in the same institution.

On November 15, 1939, at Trenton, New Jersey, certificates of registration were awarded to forty-nine newly registered pharmacists. Speakers on the occasion were Governor A. Harry Moore, Mr. Oscar

Senger, President of the New Jersey Pharmaceutical Association, Dr. Robert P. Fischelis, Secretary of the Board, and Messrs. A. V. Palumbo, J. J. Debus, and Charles Schamach, members of the Board.

The name of the Smith Richardson Research Fund has been changed to The Vick Chemical Company Research Fund.

The third annual school for retail druggists and sales personnel will be held at the University of Oklahoma on February 13, 14 and 15. The time has been cut to three days with the hope of a better attendance and the program will be packed with information of definite practical value. Wallace Taylor, a senior in the School of Pharmacy, has been chosen to represent the University of Oklahoma in the Who's Who in American Universities and Colleges, a compilation of outstanding students in American Schools.

The second annual seminar on pharmaceutical practice for practicing pharmacists will be held at the Philadelphia College of Pharmacy on January 29, 30 and 31. Pre-announcements indicate that scientific subjects will be stressed in the program. An all-inclusive registration fee of \$10.00 will be charged.

A new policy of the Association for the Advancement of Professional Pharmacy is to invite without obligation senior students of the local colleges of pharmacy to their meetings.

Dean J. G. Beard is seeing his twenty-eighth consecutive year as secretary-treasurer of the North Carolina Pharmaceutical Association and continues to edit the North Carolina Journal of Pharmacy which was established under his direction by the State Association in 1922.

A physics building, an observatory and a student union building are new structures on the campus of the University of Mississippi. Mr. C. N. Jones accepted a position in the United States Food and Drug laboratory at Atlanta, Georgia and Mr. J. Carlyle Kackney, M.S., of North Carolina State College has succeeded him in the department of chemistry. Dr. Robert D. Morton has been appointed assistant University physician and assistant in the department of physiology. Mr. James A. Richardson is a graduate assistant in pharmacy.

Three new fellowships have been established at Temple University and will be financed for the research problems in which the donors are interested. They have been awarded to candidates for the master's degree. The School of Pharmacy has been moved into a remodeled building converted into a modern, satisfactory and adequate laboratory. In another building a new laboratory has been equipped with modern apparatus for the departments of botany, biology, and pharmacognosy and a laboratory for general chemistry has been completely remodeled. A new balance room has been installed. The Board of Trustees has recently given the School of Pharmacy \$7,500.00 for the purchase of additional books. Many changes in the curriculum have been made and the use of comprehensive tests are a part of the regular procedure.

Plans have been drawn and blue prints made for a new pharmacy and medical building at the University of Kansas. It was the intention to present requests to the 1939 legislature, but owing to the depression action must await a future assembly. Professor L. L. Boughton has been made assistant professor of pharmaceutical

chemistry and two graduate assistants have been appointed, one in pharmacy and one in pharmaceutical chemistry.

Mr. Kenneth P. DuBois, a graduate of the School of Pharmacy, South Dakota State College, has been granted a fellowship at Purdue University to study antioxidants in extractive preparations of tannin bearing drugs.

Dr. Horace McFadden has been added to the staff in the department of pharmaceutical chemistry of Ohio Northern University.

Dean Roland T. Lakey of Wayne University spoke over the radio from Detroit upon Pharmaceutical Education and Public Health on October 20, as a feature of National Pharmacy Week program.

Mr. Jose Aponte, who for a number of years has been an instructor in pharmacy at Ferris Institute, has returned to his home in Puerto Rico. His place has been taken by Mr. J. B. Vaughan recently a graduate of Purdue University.

There are twenty-seven students at the University of Washington working for advanced degrees in pharmacology, practical pharmacy, pharmaceutical chemistry, and pharmacognosy. During the past year four master's and three doctorate degrees were granted. Dr. Lloyd Hazelton is teaching pharmacology at Georgetown University, School of Medicine, and Dr. Bernardo Acena has returned to the Philippine Islands to teach in the College of Pharmacy of the Philippine University and do some work with the Bureau of Plant Industry of the Islands. Doctors Charles Wilson and Malcolm Trupp, who received their degrees in 1938 are teaching at George Washington and St. Louis Colleges of Pharmacy, respectively. A \$500.00 fellowship has been granted Mr. Victor Seeborg for the present school year from a foundation established by the late Mr. A. A. Denny. A similar amount is to be awarded annually to an outstanding graduate of the college of pharmacy provided earnings from the foundation warrant it.

One hundred eighty-seven undergraduate students were enrolled in the College of Pharmacy of the University of Minnesota at the beginning of the fall quarter, 1938-39. Nineteen students registered in the Graduate School are majoring in pharmaceutical chemistry. Dr. Ole Gisvold was promoted from instructor in pharmaceutical chemistry to assistant professor. Mr. Ralph Voigt, full-time teaching assistant in the Department of Pharmacognosy and Pharmaceutical Botany, resigned as of July 1, 1939, to accept a position as instructor in the College of Pharmacy of the University of Illinois. Mr. Heber W. Youngken, Jr., son of Dr. Heber W. Youngken of the Massachusetts College of Pharmacy has been nominated to succeed Mr. Voigt in the Department of Pharmacognosy and Pharmaceutical Botany.

At the University of Idaho Mr. E. A. Swinyard has been advanced to the rank of assistant professor in pharmacy and Mr. E. E. Roscoe to associate professor of pharmacology. Gordon Wolf has been appointed an instructor in pharmacy.

Dr. Oscar Henry Plant, Professor of Pharmacology in the College of Medicine of the State University of Iowa, who died on October 1, 1939, was one of this country's distinguished scientists and teachers in the field of pharmacology. While his investigation carried him into many fields his outstanding contributions were concerned with the effect,

of morphine upon the digestive tract and his basic work upon morphine addiction. At the time of his death he was president of the American Pharmacological Society. A fact of interest to pharmacists is that Doctor Plant decided to study medicine when he was fourteen and as a part of that program he worked for a Galveston, Texas pharmacist during his vacations and spare time. This was a factor in directing his interests into the field of pharmacology to which he contributed so much in his later years.

Mr. Harold C. Heim has been added to the teaching staff of the College of Pharmacy of the University of Colorado. Dr. David O'Day and Mr. Robert Gasen made a number of informal talks on the importance of pharmacy in public health to the high schools of Colorado during Pharmacy Week.

Dean Hugo H. Schaefer of the Brooklyn College of Pharmacy has been elected a Fellow of the New York Academy of Sciences. Dr. John Y. Keur has been appointed assistant professor of bacteriology replacing Dr. Rufus E. Bowen. In the chemistry department two new laboratories have been equipped for research. A typical "Corner Drug Store" has been installed in order to acquaint the students with the problems met with in the average drug store. Instruction will be supervised by Mr. Harry Winokur.

The Connecticut College of Pharmacy has recently received a gift of eighty-five volumes of pharmaceutical books from John Lyston of Norwich and twenty-five volumes from Harrison E. Purdy of Derby. The Extension Department of the University of Connecticut at Storrs has established headquarters for the New Haven area in the Connecticut College of Pharmacy and classes are being conducted for about fifty students.

On December 2, the new chemistry hall costing \$425,000 was formally dedicated at Oregon State College. Dr. F. A. Gilfillan, formerly professor of pharmacy and now Dean of the School of Science was in charge of the program. With the transfer of the department of physical chemistry from the first floor of the pharmacy building to the new chemistry building, the School of Pharmacy will have a larger laboratory available for pharmaceutical chemistry. This change will also provide better facilities for work in pharmacology and research. Under the terms of the will of the late Lynn B. Ferguson of Newberg, Oregon, the sum of \$1,000, was bequeathed to the Oregon State Pharmaceutical Association Educational Fund, which is the School of Pharmacy Student Loan Fund. Dean F. A. Gilfillan of the School of Science has been appointed chairman of the administrative committee of the Institute of Marine Biology operated for the State System of Higher Education at Coos Head. Miss Ruth E. Peterson, a senior, has been awarded the McKesson and Robbins prize of \$50 for having made the highest average in a competitive examination in pharmacy given members of the junior class who have been outstanding during the first three years in the college. The same firm has also completed the equipment of the model drug store which is to serve as a laboratory for the teaching of commercial pharmacy. According to a compilation from the 1939 alumni directory, the 750 graduates are occupied as follows: registered pharmacists and managers of drug stores, 31.64 per cent; proprietors, 28.03 per cent; chemists, medical

students, general merchants and others, 11.06 per cent; instructors in colleges and universities, 2.39 per cent; travelling representatives for drug manufacturing firms, 5.86 per cent; practicing physicians, 6.40 per cent; housewives, 7.82 per cent; deceased 5.74 per cent; address unknown, 1.06 per cent. Mr. J. Deane Patterson 1925, is chief chemist for the State Department of Agriculture, Division of Foods and Dairy Products, and Dr. Paul Jewell, 1939, is chief chemist for the Max Factor Studios of Hollywood.

Early in December Duquesne University held a refresher clinic for the practicing pharmacists of the Pittsburgh area. The clinic was well attended. The same program will be given in January to the retail pharmacists of Cambria County at a meeting to be held at Johnstown.

Two internships in hospital pharmacy will be available at the Medical College of Virginia beginning July 1, 1940. One of these is open to all graduates in pharmacy, the other is a residency, available to all graduates in pharmacy who have had one year of experience in hospital pharmacy. Both of these positions offer supervised instruction in clinical pharmacy, hospital pharmacy and manufacturing pharmacy. The residency will also allow time for independent research and instruction to students.

In the second edition of *Experimental Pharmacology and Materia Medica* by Dr. Dennis E. Jackson, which is just from the press, a number of pages are devoted to description of the technique of using *Daphnia magna* as an experimental test animal in pharmacology according to the methods developed by Professor Arno Viehover and his colleagues at the Philadelphia College of Pharmacy and Science.

In preparing the report of the Committee on Resolutions, the following recommendation submitted by the Conference of Teachers of Pharmacy was overlooked:

That a committee be appointed to study ways of developing a wide-spread program of research which will benefit the large body pharmaceutic, the men and women linking the consuming public with the physician and manufacturers of medicine.

The Committee on Resolutions expressed approval in principle of any program of research which will benefit pharmacy but thought the proposal within the province of the National Conference on Pharmaceutical Research and recommended that it be referred to that body. The recommendation of the Committee on Resolutions was adopted.

Dr. H. C. Christensen, Secretary of the National Association of Boards of Pharmacy is convalescing after a severe operation in the French Hospital in New York City. To know that he is improving will bring cheer to the entire pharmaceutical profession of America in whose interests he has so long labored.

Again Richmond seems like Richmond and Virginia seems like Virginia to all those who have experienced the hospitality of the Rudd home. Mrs. Rudd, after a long illness, is well again and for her return to health we are one and all grateful.

PHARMACEUTICAL EDUCATION ON THE MARCH

Under date of September 23, 1939, President Charles H. Rogers addressed a letter to the deans of all colleges holding membership in the American Association of Colleges of Pharmacy. This letter is printed in full below. The objectives of his search are set forth in the fourth paragraph of the letter and if they should be reduced to one sentence it would read something like this: *Tell what is happening in your institution that represents progress in pharmaceutical education that might be of value to the Association membership as a whole.* When it came to editing the replies for publication the Editor found he had a difficult job in attempting to separate items which represented progress from items which were merely news. Improvements in equipment and buildings, changes in methods of teaching, the addition of laboratory work in subjects where laboratory work was not formerly given, additions to the teaching staff, and the creation of new scholarships, all represent progress in pharmaceutical education. On the other hand, the appointment of another individual to a position already established is a matter of news. If you find certain items which you included in your reply deleted from your statement, look for it in Notes and News. Even with this distinction, border line cases were found in which it was difficult to decide. It was necessary because of the mass of material to edit every reply severely, but an attempt was made to preserve the personal touch of the writer which in each case was the dean of the school. If there is any criticism of the editorial endeavor, it should be directed toward the Editor and not President Rogers. It is hoped that this section can be continued in future editions of the Journal. It will depend entirely upon the interest the deans have in reporting to the Editor improvements of any kind in their respective institutions. It will mean much to pharmaceutical progress if we can show each quarter, some concrete evidence that *Pharmaceutical Education is on the March.*

Rufus A. Lyman, Editor.

* * *

To the Deans of The American Association of Colleges of Pharmacy:

Probably the most important common objective of member schools of the American Association of Colleges of Pharmacy is to so professionally and culturally implement our students that they may be qualified to assume their responsibilities as pharmacists and may efficiently discharge their duties in their chosen field of endeavor. Toward this end, our present organization was founded nearly forty years ago and its constructive forces have coordinated our individual efforts to such an extent that we can be justly proud of our accomplishments.

One of the most cogent factors in our progress has been the free and unselfish interchange of thoughts and ideas by teachers and administrators of our colleges. These interchanges reach a peak during our annual conventions but in the interims they are limited to publications in the American Journal of Pharmaceutical Education and to correspondence among a few deans. Our individual educational and research

programs could not help but be furthered by the experiences of other schools. However, if we have only meager information about what has been or is going on at institutions outside our own immediate bailiwicks, universal progress will inevitably and unnecessarily be delayed.

The district meetings of the Committee on Relation of Boards and Colleges have provided opportunities for educators to exchange ideas but again the time is limited for doing so because of the necessity for discussing problems of mutual interest to Boards and Colleges. Furthermore, any educational intercourse at these meetings is among schools located within localized geographical districts and these schools are the ones about which the participants are usually the best informed. We at Minnesota would appreciate knowing what progress is being made in *all* of the association schools and, in turn, would be glad to tell other schools of our efforts and receive advice and suggestions upon them. From numerous inquiries, I am of the opinion that many other member schools feel the same way and would welcome more frequent opportunities for these interchanges during the year.

Therefore, I am inviting the deans of all member colleges to set forth at length or in abstract the various "activities" in their respective schools and send them to me in time to be submitted to the Editor of the American Journal of Pharmaceutical Education for editing and publishing in the January issue. These "activities" may include curricular changes and modifications, progress in research, buildings, equipment (new), changes in laboratory arrangement and why, new volumes in libraries, changes in teaching technique with results, comparisons of course and comprehensive examinations, educational research projects, additions to personnel, new scholarships and fellowships stating ways and means by which obtained and financed and, in fact, anything that has not already been published and which you believe would be of interest to your collaborators in furthering the progress of pharmaceutical education. I believe we all feel we can learn much from our sister institutions and my proposal is made in the sincere hope that it will expedite our earnest efforts to give the best possible instruction to our students and thus eventuate in an improvement of the pharmaceutical service to the public. Please do not be modest about your accomplishments nor hesitate to tell us of your mistakes. All of us want to profit from both. If after the publication of the January issue of the American Journal of Pharmaceutical Education any activity of one of our schools especially interests you, feel free to write to that institution and ask for further details. I am sure the dean or a member of the faculty will be happy to correspond with you.

Assuring you again that my proposal is prompted by an earnest desire to further progress in pharmaceutical education by keeping our member schools in closer touch with one another during the interim between meetings and respectfully soliciting your advice, counsel and support, I remain

Minneapolis, Minn.

September 23, 1939.

Sincerely yours,

Charles H. Rogers, President.

* * *

University of Washington, College of Pharmacy.

Buildings and Laboratories.—A combined plant laboratory and

greenhouse for the college has just been completed at a cost of about \$51,000. The location is adjacent to the drug garden and pharmacy building. The main floor of the laboratory consists of a milling and distilling room, where large quantities of crude drugs can be milled or distilled. On the same floor are thermostatically controlled driers with a crude drug capacity of 500 to 1000 pounds, a large storage room for cured drugs, smaller rooms for equipment and supplies, and an office for the supervisor of the drug garden and greenhouse. A fully furnished basement with all necessary utilities is equipped for a pharmaceutical manufacturing laboratory. We propose to do heavier machine manufacturing in this portion of the building. The greenhouses are an integral part of the structure and open directly into the laboratory of the building. There are five units to the greenhouse, with a large central conservatory 24 by 30 feet and 24 feet high. Two smaller glass structures, 15 x 20 feet, adjoin the large conservatory on both sides, making a group of five glass houses. Soil sterilization facilities, cold frames, hot beds, and the most modern heating control systems are installed throughout. Besides housing many tropical drug plants, we are using the greenhouses for sand and hydroponic culture, studying plant parasites and methods of combating them, and propagation of plants by various processes.

Home Remedy Course.—A two hour course known as "Home Remedies" is now offered each quarter to non-pharmacy students of the University. The material as presented, treats of the common medicines used in the home and by the layman. Emphasis is placed on the purpose, composition, preparation, how best used, and effectiveness, as well as a discussion of advertising claims. Enrollment in the course is limited to 100 and the popularity of the course is evidenced by the fact that registration is always at a maximum.

Research.—Most members of the staff are conducting independent research of their own or collaborating with some member, as well as directing the work of graduate students. The facilities are excellent at present, with the new buildings and equipment. Our drug garden of nearly one thousand different species is a real stimulus to various departments of our college.

Faculty Meetings.—We feel that greater continuity between our courses, our aims, and our objectives can be attained by weekly faculty meetings, regular seminar sessions with our graduate students, and a close advisory program with our undergraduates. We appreciate that a great deal is accomplished by the interchange of ideas at our gatherings. By the same token, our faculty endeavor to get to the national meetings to profit by the ideas and experiences of others. Incidentally, five of our full-time faculty members and two part-time fellows attended the Atlanta meeting.

University of Minnesota, College of Pharmacy.

Curriculum.—The curriculum was revised this year. By so doing, the course of study in pharmacy is believed to have been strengthened by; 1) the addition of three new required courses, namely, Cosmetics, Pharmaceutical Biochemistry, and Biological Products; 2) better distribution of credit hours; 3) greater flexibility, that is, adapting elective courses to students' anticipated needs rather than have students adapt

themselves to a rigid and fixed curriculum; 4) conforming to general University standards for credit value; 5) reducing the number of credit hours required for graduation from 232 to 188; 6) offering professional electives during two quarters of the senior year; Industrial Manufacturing Pharmacy, Pharmaceutical Technology, Food and Drug Analysis, Biological Assay of Drugs, Pharmacognosy and Pharmaco-Histology, and Hospital Pharmacy; 7) teaching methods used in some of the courses were changed so as to conform to the newest educational procedures. The course in Hospital Pharmacy is being offered for the first time this year. It is a six-credit course covering two quarters and is taught by Miss Hallie Bruce, Chief Pharmacist of the University Hospitals.

Combined Pharmacy and Business Administration Course.—Four students are enrolled in the optional combined five-year course in pharmacy and business administration leading to the degrees Bachelor of Science in Pharmacy and Bachelor of Business Administration. This optional course is open only to those students who register in the College of Pharmacy either with or without advanced standing and who can present evidence of better than average ability. Students who are permitted to register for this course of study must take the professional and business administration courses in the sequences in which they are offered.

Buildings and Equipment.—A number of minor changes have been made in the laboratories of the College. The principal change consisted of the building of two prescription loges in the dispensing laboratory. These loges are connected by telephone with the professor's office and the students are trained in taking prescriptions over the telephone. The rest room for the women students was entirely redecorated and refurnished. Alterations made in the stock room on the third floor provided a small office and research laboratory for one faculty member and also made work space available for two additional graduate students. Change in the laboratory desks in the analytical laboratory doubled the number of laboratory desk lockers. This alteration has made it possible to accommodate two laboratory sections instead of one.

Library.—The allotment for purchase of books for the pharmacy library has been approximately doubled for this year. The records show that the number of library student hours for 1938-39 was more than doubled that for 1937-38.

Pharmaceutical Institute.—The fourth Pharmaceutical Institute will be held February 5, 6, 7, 1940, in the Center for Continuation Study. The program for this Institute has not been completed as yet. However, Dr. R. L. Swain of New York will be one of the guest speakers.

Educational Studies.—The University Committee on Educational Research has allotted approximately \$1000 for continuing the comparative study of the effectiveness of course and comprehensive examinations. This educational research project is under the direction of Dr. Palmer Johnson, Professor of Education, and Dean Charles H. Rogers.

Student Activities.—The Student Council of the College of Pharmacy has recently created a Publication Committee consisting of one member from each class. The members of this Committee interview members of the faculty and gather news about the members of their respective

classes for publication in the *North Western Druggist*. The Council sponsored a Pharmacy Week exhibit in the lobby of the College. The publicity given to this exhibit was responsible for a number of visitors during the week.

University of Maryland, School of Pharmacy.

Curriculum Changes.—We feel that definite improvement was made in our curriculum for the session of 1939-40. The time devoted to galenical and dispensing pharmacy has been increased and an elective course added in advanced prescription compounding for students of the fourth-year class. The course in pharmaceutical mathematics, as such, has been discontinued because it was felt that pharmaceutical mathematics should not be dignified to the extent of giving it a separate listing. Instruction in the subject is now given in the other scheduled courses in pharmacy. The number of hours devoted to the study of the biological sciences has been increased. A laboratory period of three hours per week for the entire year has been added for the third-year class in pharmacology. The course in biological assaying for the fourth-year class is now a required course instead of an elective course as formerly provided. A full year is allotted to the study of the chemistry of medicinal products. Elective courses have been provided in scientific German and calculus for those who plan to do graduate work.

Scholarships.—We have established four additional research fellowships the present session, one post-graduate and two undergraduate William R. Warner Fellowships, and one research fellowship in Food and Drug Chemistry.

Library.—In 1930 the Alumni Association made a gift of \$2500.00. This with the yearly budget appropriations have made possible a library of over 6000 volumes. During the year a number of additions have been made including the latest editions of the Estonian, Finnish, French, Polish and Portuguese Pharmacopœias.

Student Organization.—The Students' Auxiliary of the Maryland Pharmaceutical Association was organized at the School of Pharmacy on November 15, 1935. Undergraduate students who are members of the second, third, and fourth-year classes are the active members. The president is elected from the fourth-year class, the first vice-president from the third-year class and the second vice-president from the second-year class. The executive committee is composed of five members, two from the faculty and one from each undergraduate class. No student is eligible to hold office or to committee appointment who has not received a passing grade in all courses in the semester immediately preceding candidacy or time of appointment. Provision is made to hold not less than six meetings each session. Regular business meetings are held. Provision is made for paying the expenses of two delegates to the annual convention of the Maryland Pharmaceutical Association, one delegate to be the president of the Auxiliary. One provision of the by-laws which is of vital interest is the provision whereby each student regularly receives the "Maryland Pharmacist", the monthly publication of the Maryland Pharmaceutical Association, which has been made the official organ of the Auxiliary. The dues of each member of the Auxiliary is collected and budgeted through the Students Activities Fund of the School of Pharmacy, and one-half of the dues paid to the treasurer of

the Maryland Pharmaceutical Association for a subscription for each individual student. By means of this Auxiliary the interest of the student in pharmaceutical organizations is awakened and stimulated, and an opportunity provided for active membership after graduation.

George Washington University, School of Pharmacy.

Special Lectures.—A series of lectures have been arranged covering the first semester of the senior year and we are planning to extend the group in 1940-41 to a full year. The lectures are required of all seniors but do not carry credit hours. The lectures cover the following subjects: Pharmaceutical Organizations, Scientific Literature, Drug Manufacture, Public Health, Drug Control, Military Pharmacy, and Industrial Pharmacy.

Hospital Service.—Tentative plans are being worked over for the School of Pharmacy to operate the University Hospital Pharmacy.

Research.—Professor Wilson has been appointed a sub-committee member of the National Formulary Committee on Miscellaneous Solutions and is a sub-committee chairman of the Committee on Deterioration of Alkaloids in the Study of the Deterioration of Drugs, one of the projects of the Problems and Plans Committee. He is at present at work on a new method for the assay of ephedrine in oil solution. Dr. Gramling is carrying on his studies of the biological assay of gelseminium by the pigeon emesis method, particularly with reference to the relationship of the assay to therapeutic activity. In cooperation with the District of Columbia Pharmaceutical Association, Dean Briggs is developing the plans for a rather extensive study program for pharmacists.

Howard University, College of Pharmacy, Washington, D. C.

Practice in Compounding.—Each senior student receives one hour of prescription practice in the Freedmen's Hospital five days per week in addition to the regular course in dispensing. The dispensary averages 125 prescriptions per day in its out-patient clinic. In cooperation with the Colleges of Medicine and Dentistry, the College of Pharmacy is serving all of the needs of the University Health Service in the preparation and dispensing of prescriptions for students and faculty members.

Comprehensive Examinations.—In 1937 the College adopted a system of comprehensive examinations in the basic or applied courses in pharmacy. Comprehensives are given as a prerequisite to the senior year. A second comprehensive examination is given following the regular examinations of the senior year and must be successfully completed before candidacy is recommended for graduation. Educational facilities are extended to the retail pharmacists of Washington through a series of special monthly lectures by members of the faculties of the University and individuals connected with organized pharmacy as well as successful retailers, detail men and representatives of the various branches of the United States Government.

Scholarships.—The Board of Trustees makes an annual grant to the College of ten tuition scholarships having a value of \$150.00 each. These are available to any student either in the College or desiring to enter the College who possesses an average grade of "B" or better. The College also receives a rebate from the University of seven per cent of all tuition and fees paid by the pharmacy students. This rebate

is used for scholarship aid to needy students. A cooperative organization for the purchase of student books is being developed. The profit derived from this organization is to be used as a revolving book fund for students unable to purchase all of their books at the beginning of the school year. Our greatest need at present is a larger library collection. We will appreciate any extra volumes or volumes that any other institution feels can be discarded. Postage or express charges will be defrayed by Howard University.

Western Reserve University, School of Pharmacy.

Hospital Pharmacy, Equipment and Research Grants.—Our hospital manufacturing laboratory has added an automatic machine for filling, closing and clipping collapsible tubes. These tubes will contain eye ointments, dermatological pastes and ointments, lubricating jellies, cold creams, petrolatum for sterilization, etc. Dr. Edwards in the Department of Pharmacognosy and Pharmacology has received a grant from Proctor and Gamble which endows a fellowship for work on the irritant properties of soap. This particular work and the various phases of it that have been solved were developed because of the work we are doing in hospital pharmacy. Our enrollment this year is a little greater than last year with a total of ninety students in the School of Pharmacy and ten graduate students who are either taking work in hospital pharmacy or are in hospital pharmacies and taking subjects that will be helpful to them in their work. Our Graduate School extended the privilege of two scholarships with full tuition and fees free for one year to two such graduate students. These students have come to us this year from rather widely separated localities such as, South Carolina, Connecticut, Montana and the Province of Alberta. In June, 1939 our Graduate School conferred two degrees of Master of Science upon candidates with a major in Hospital Pharmacy.

Montana State University, School of Pharmacy.

Improvements in Housing and Instruction.—The School is entering upon a new and the most important epoch of its history, as we are now being installed in the rooms of the new Pharmacy-Chemistry Building. For the first time, the School will have adequate quarters and specially equipped rooms for each one of our major classes. We will have an opportunity for the first time to offer some laboratory instruction in pharmacology. We will also have a room equipped for research work, particularly in pharmaceutical chemistry. In addition to these two new facilities, we will, for the first time, have a combined pharmacy and chemistry library for use of students of both departments. Our medicinal plant garden has also received considerable improvements, and while we are still without a medicinal plant green house, we are planning on some researches in drug production, especially on some of the insecticides. A few changes have been made in our curriculum; noteworthy, is that we require a pre-pharmaceutical year of forty hours of work, which includes a course in general chemistry before students are admitted to the technical courses in Pharmacy. The School is still short many of the things which make the work agreeable and efficient, such as a full time secretary, a full time stock room assistant, and student

assistants for the professors. I hope these activities may be of some interest to some in other colleges of pharmacy.

University of North Carolina, School of Pharmacy.

Researches.—Members of the faculty and graduate students are carrying on the following investigations: a survey of the drugs and drug industry of North Carolina; a book dealing with the medicinal plants of North Carolina; the chromatographic separation of alkaloids; the pharmacy of glycerine of bismuth and its use by oral administration; the constituents of white snakeroot, also studies of *Piscaria* (*Eremocarpus setigera*) I; examination of oil of seed, and the assay of lead oleate plaster and ointment; a phyto-chemical study of *Impatiens biflora* (Walt); and the measurement of equilibrium rate in drug extraction; and a continuation of the oxidation of phenols.

Student Activities.—For the past four years the major portion of the student body has sponsored a branch of the State Pharmaceutical Association. Appointed representatives of the student branch appear upon the annual programs of the state conventions. A member of the faculty acts as adviser to the group. Annually, the Rho Chi society presents a Recipe Book to a first year student who excels in scholarship.

Medical College of Virginia, School of Pharmacy.

Pharmaceutical Internships.—The new \$2,000,000 hospital is going up rapidly and will be completed in June 1940. The School of Pharmacy has entire charge of dispensing in all of the college hospitals and in the out-patient clinic. Students are assigned to the dispensary in groups of eight where they work all during their senior year. For the first time, a pharmaceutical interne, a '39 graduate, has been appointed. He lives with the medical and the dental internes and thus has excellent opportunity to influence them in prescription work.

Tests.—For several years all new students have taken the Otis Self Administering Tests of Mental Ability. This has given us opportunity to study the correlation between student accomplishment and their ability as measured by these tests. When more of these data are available the results will be made public for comparison with similar data in other colleges of pharmacy.

Research.—A problem in hybrid sterility is now in progress in the biological laboratory. We are attempting to determine the underlying causes of sterility when certain specific and interspecific crosses are made. It is hoped through this study, light will be shed on the more fundamental principles of general sterility and semi-sterility. Both cytological and genetical aspects of this problem are being investigated.

Loyola University, College of Pharmacy.

Laboratory and Library Improvements.—New laboratories for dispensing pharmacy, pharmacognosy and pharmacology are being equipped with new furniture and new apparatus. The pharmacy library has been separated from the chemistry-pharmacy library and a new room has been made available. New furniture and library stacks have been purchased. Two donations of 500 books dealing with pharmaceutical and allied sciences have been made. President Roy has authorized three thousand dollars for new books so that by the middle of the second

semester we will have a very excellent pharmaceutical library. The library is in charge of a trained librarian, and during twenty-one days in November nine hundred and twenty-two students used it for study and reference. Our present enrollment is seventy-six. A new animal house is being arranged to be used jointly by pharmacy and biology. It is being equipped with all modern apparatus.

Hospital Pharmacy and Student Activities.—Perhaps our greatest activity this year is our hospital work at the new Charity Hospital. We take junior and senior students for practical experience three afternoons a week. This new hospital, erected at a cost of twelve million dollars and housing thirty-four hundred beds, requires a large quantity of medicine. The student branch of the American Pharmaceutical Association is very active. During pharmacy week they directed and assisted in the installation of sixteen pharmacy week windows and arranged a radio broadcast for every day of pharmacy week.

University of Florida, School of Pharmacy.

Teaching Methods.—A student qualified in the art of photography is copying pictures of medicinal plants to be enlarged for class room display. Laboratory exercises in pharmaceutical chemistry are being checked to determine those most suitable for use. A short quiz is given at the beginning of each laboratory period as a check on the knowledge of the students about the work to be done during the period. Half of the laboratory grade for the semester is based on these quizzes. Half of the final examination questions in general chemistry are taken from those compiled by the Section on Chemical Education of the American Chemical Society.

Progress in Research.—Two WPA research projects are being sponsored: 1) Survey of the Retail Drug Trade in Florida; 2) A Compilation of a Pharmaceutical and Chemical Bibliography of Plants Growing in the State. These projects will be carried on by non-technical workers of good education located in one of our large nearby cities where library facilities are available. WPA officials advise that this type of work can be easily handled by correspondence and periodic visits of the sponsors. Research work continues in our medicinal plant garden with a view of finding plants suitable for growing in our state. Cultivation of a few of the more promising are now being tried on a semi-commercial scale in several localities. The University of Florida has a newly organized Research Council whose function it is to stimulate and coordinate research activity in the University, including the Agricultural Experiment Station.

Advisory Boards.—Ever since the inception of the School of Pharmacy at the University of Florida, the Florida State Pharmaceutical Association has had a Committee on the School of Pharmacy. This has functioned admirably and I believe the same is done in many other states. It is of interest to note that the Department of Journalism in the University has followed suit by recently organizing an advisory board consisting of many editors of newspapers throughout the state. Inasmuch as there is strength in numbers, it will be interesting to observe the results.

Refresher Courses.—Past experience with such courses on two different occasions lead us to believe that such courses can be held to

better advantage in the larger cities where attendance should be greater. The annual photographers short course held at this University has had some worthwhile features of interest to pharmacy students, namely, the lectures and demonstrations on photo finishing.

Library.—An appeal is regularly sent out for old books and journals. Even though the journals so acquired are on hand, they become valuable as a means of exchange for sets not on hand. We have recently instituted a WPA binding project. Initial results are encouraging.

Historical Material.—This is being slowly collected over the state. We find it necessary to remind the druggists periodically that this is worthwhile to the institution. The response has been unusually good this fall. These items will eventually be used in assembling a pharmacy museum.

Radio Broadcasts.—The radio station has been used to good advantage on numerous occasions; for example, during Pharmacy Week at which time daily broadcasts were put on by students and pharmacists of the state. This is a potential instrument of good will and we plan on using it more frequently in the future. Schools of pharmacy having such stations available at their institution may have overlooked the possibilities.

Student Organizations.—Inasmuch as we have always had a very active student organization known as the Mortar and Pestle Club, it has been difficult to get a large membership in our Student Branch of the American Pharmaceutical Association. We believe that a greater membership would ensue if the dues could be lowered to one or two dollars annually. We look forward to the new Journal of the American Pharmaceutical Association as a means of arousing more interest in this body. Rho Chi, has been active in putting on pharmacy exhibits and sponsoring an annual mixer for the entire school.

Alumni.—This School endeavors to keep in constant touch with its alumni with a view of finding better positions for them where such are warranted. We believe this to be an important factor in raising the standards of pharmacy in our state.

Florida State Pharmaceutical Association.—At several annual conventions this body has put on a University Hour featuring papers by the students of our School. This is serving well as a builder of good will and no doubt will be continued in the future. A committee on the School of Pharmacy from this Association regularly inspects the School and reports to the Association. This has been helpful. The Journal of this Association regularly carries news items on the activities of the School. The faculty members, in rotating order, write articles for it.

Rutgers University, College of Pharmacy.

Course Changes.—We have combined the courses in botany and zoology thus making a course in biology which we feel is appropriate and which will prove helpful to pharmacy students. So far we have not had a separate course in pharmacology. Professor Schicks gives two years of materia medica to our junior and senior students, and we have had some biological assays introduced into the laboratory work in physiology. We are planning a separate laboratory course in pharmacology, which we hope to offer for the first time in September, 1940. For the past two or three years we have tried giving comprehensive examina-

tions in chemistry and pharmacy. We feel that this should be further extended.

Scholarships.—We have been very fortunate in having the State of New Jersey provide about 200 scholarships a year for Rutgers undergraduates. We have about 20 of these scholarships at the College of Pharmacy at the present time. Not only have these scholarships proven a great help to the students to whom they have been awarded, but they have proven a means of interesting the right type of student in our college.

West Virginia University, The College of Pharmacy.

Extra Curricular activities and Professional Relations.—Unfortunately our college has not participated in extra-curricular work to the extent that I should like. However, through our University Pharmacy, we do cooperate with the University Health Service in the filling of prescriptions for the student body. In my capacity as secretary of the State Pharmaceutical Association, we have for several years been utilizing a part of the state professional information, somewhat similar to that which is being offered by some of the colleges in their extension or "brush up" courses. In addition, the College of Pharmacy is actively cooperating with the State Pharmaceutical Association in the preparation and distribution of prescription cards which are mailed to approximately 1200 practicing physicians of the state at each two week intervals. This work is a part of the program of our Professional Relations Committee. We are also at the present time formulating a somewhat similar program in order that the pharmacist may actively cooperate with the practicing dentists of the state.

University of Pittsburgh, School of Pharmacy.

Teaching Fellowships and Research.—In order to keep pace with the changing order, five teaching fellowships have been established. The present appointees are pursuing graduate study leading to the degree of Doctor of Philosophy. In the future there will be available two teaching fellowships each year which will be open to any student who has a baccalaureate degree from a recognized university. High scholastic standing, good moral character and a desire for pharmaceutical research are important qualifications. The stipend for each fellowship is Five Hundred Dollars (\$500.00) for nine months and tuition (nine credits a semester).

Progress in Research.—We believe that general programs of research should occupy an important place in a school of pharmacy and have discouraged isolated research for the benefit of broad research programs requiring the cooperation of all departments of the institution. Research in schools of pharmacy should encompass not only purely pharmaceutical problems, but also those of a chemical, biological pharmacological, bacteriological and educational nature. As a consequence of this view we are developing programs of study requiring departmental cooperation.

Problems Under Investigation Are.—Methods of synthesizing fats and a general study of their metabolism; Investigation of new phenolic type compounds with a subsequent investigation of their pharmacological

and bactericidal activity: A complete program involving a study of extractive methods for alkaloid containing drugs.

Teaching Technique.—Students who study at all can generally be divided into two classes; those who study consistently day by day, and those who postpone their studying to intensive periods prior to examinations. The superiority of the first method over the second is hardly debatable, since all teachers probably at some time or other have compared the results of the efforts of the two groups. Admitting the superiority then, of the former, it necessarily follows that any procedure designed to encourage the first and discourage the second represents better teaching technique. We have found that short daily written examinations definitely contribute to the habit of daily study.

In laboratory work we have found periodic examinations covering only material directly related to the experiments performed to be very helpful. In botany and pharmacognosy laboratory work the living specimens are used whenever possible. Methods of collecting and drying whole plant specimens are taught and drug plants are emphasized particularly. Visual methods, namely motion pictures, lantern slides and film slides are used wherever possible. A considerable amount of physiological apparatus has recently been added and a course in pharmacology will be given the second semester. A large number of books have recently been added to the library. Plans for a new building, adjacent to the Cathedral of Learning are being drawn.

Massachusetts College of Pharmacy.

Improvement in Teaching Methods.—Refinement of the curriculum, coordination of subject matter, correlation of courses and critical evaluation of the results of present practice are general topics of continual concern in the meetings of the faculty and of the administrative boards of the Massachusetts College of Pharmacy. For more than a year special emphasis has been placed on the study of courses in dispensing. The results of this study are now being utilized. A new superlatively fixtured prescription laboratory has been equipped and is in use. Here with all the modern equipment of a fine professional pharmacy, sections of not more than twelve students work under close supervision of two instructors who have outstanding experience in the practice of pharmacy as well as in teaching. This new prescription laboratory will be formally dedicated in June when a detailed prescription of it will be made available to the profession.

Graduate Curricula.—A special faculty committee under the chairmanship of E. V. Lynn has been making progress in the construction of a graduate curriculum leading to the degree of Master of Science in Pharmacy. Valuable assistance has been given by other colleges of pharmacy in this work. An announcement of the curriculum will be made shortly. It is expected that this curriculum will meet the needs and the desires of the modern graduate student in pharmacy. With the unusual facilities available, the expectation seems well founded. Another project is the development of adequate means for continuation study by graduates and practicing pharmacists who desire to avail themselves of so-called refresher courses.

Student Handbook.—The first publication project of the Student Council was undertaken by this organization this year. The result is a

handbook for the students which has proved of considerable value to them, especially to the freshmen. With plenty of room for improvement it will be continued as an annual project.

Research.—The following research topics are being investigated by faculty members and graduate students in the College during the present session: The synthesis of cantharidin; the determination of tartrates by oxidation; the chemistry of Tabasco pepper; the activity of poison ivy; soluble organic iodides; the assay of methenamine; the structure of methenamine; an investigation of the growths occurring in certain eye washes; a study of Louisiana and African capsicums; a colorimetric method of assay of capsicum; the histology of white pine bark; a pharmacognostic study of parathyroid, No. II; a study of chionanthus; a study of the root of ceanothus.

South Dakota State College, Division of Pharmacy.

Students Supply and Demand.—The total enrollment is approximately one hundred, which we consider to be the proper number for the equipment which we have available, and the opportunities which are available in the field of pharmacy here in South Dakota. In fact, we have made a definite effort to keep the enrollment in the school at such a figure as would tend to under-supply rather than over-supply the number of pharmacists required to operate the various pharmaceutical activities of this locality. We have sought, in so far as possible, to make a selection of our freshmen on the basis of their having had experience in the field, as apprentices, or individuals who are recommended by our own graduates or members of the profession. We believe this is one of the most important phases of our activities. We likewise try to maintain a scholastic requirement slightly above the standard of the school in general in the hope that our graduates would not fail their mission as pharmacists. We do this by eliminating those who are undesirable in the freshman year, paying no attention, whatsoever, to the effect upon our enrollment.

Student Activities.—We urge our students to participate in all extra-curricular activities which contribute to their general well being, such as athletics, music, dramatics or the election of those courses which may develop those unusual talents for which the student may have a particular inclination. We foster one professional society for the entire Division, and only one honor society, namely Rho Chi. In this way, we feel that we effect a united attitude on matters pertaining to professional integrity.

Equipment for Special Objectives.—Our equipment is not elaborate, although we have sought to provide each student with an opportunity to follow out all pharmaceutical procedures with the exception of pharmaceutical manufacturing. To this end, we follow the policy of enrolling all students in the same basic course for the first two years. At the end of this period, we seek to direct the student's attention toward the three major fields which we feel are open to the pharmacist, namely: retail practice, graduate study, and clinical and hospital pharmacy.

Undergraduate Research to Develop Creative Thinking.—We offer our senior students an opportunity to conduct a certain amount of original research. Some schools consider this purely "problem work," however, we feel justified in dignifying it with the term "research"

since it is closely affiliated with the cooperative research investigations which the Division is carrying on with other departments of the institution, the same being supported by Federal funds. We do have an unusual medicinal plant garden and during the last year, succeeded in securing federal funds for the building of an adequate greenhouse which makes the drug garden a field laboratory for the group in pharmacognosy. It likewise supplies excellent material for pharmacological research. We feel that our pharmacology is comparable to the majority of courses offered in the medical schools since our students are required to perform all of the normal procedures of biological investigation as well as to perform the fundamental experiments which better enable them to interpret the physiological action of drugs.

Commercial Courses.—We have long endeavored to maintain certain aspects of what might be termed "commercial pharmacy" by developing formal courses in store management, window display and salesmanship and have supported these courses by well equipped laboratories wherein demonstrations may be carried on.

Professional Relations.—The personnel of the faculty is composed of young men who have spared no effort to secure adequate graduate standing, likewise each of them is qualified as a registered pharmacist in this state, a fact which inspires confidence from the retail pharmacists to an extent which I consider quite unique. Inter-professionally, the personnel of the Division has been most active, and we feel that the rank and file of pharmacists within the state have profited thereby.

North Pacific College of Oregon, School of Pharmacy.

Research.—Professor Frederick Grill has been contributing some research work for the National Formulary Revision Committee. Dean A. O. Mickelsen has recently perfected a new portable sterilizer which should be of real interest to pharmacists since the apparatus is designed to use the germicides and disinfectants sold through the drug store. There are a number of alcoholic and aqueous disinfecting solutions that have not been used extensively because of the lack of a suitable container. This apparatus is to be used for the cold sterilization of dental and surgical instruments which for various reasons should not be heated. The sterilizer consists of two separate, but connected three-liter pyrex glass vessels which rotate permitting the germicidal liquid to flow from one to the other. The receptacles are sealed during the sterilizing process, thus preventing alcoholic solutions from evaporating. The sterilizing liquid is always out of the way but still ready for immediate use. The instruments may be removed without the fingers coming in contact with the liquid by automatically draining the liquid into the lower container. The sterilizer can be carried as a suitcase. We have underway, an investigation of the value of isopropyl alcohol as a disinfectant.

University of Puerto Rico, College of Pharmacy.

Curriculum.—A few minor changes have been made in order to obtain a better sequence of courses and more efficient teaching.

Research.—Professor Torres-Diaz and Mr. Nunez are working in the field of phyto-chemistry. In Puerto Rico there is a large number of plants to which medicinal properties have been empirically attributed.

Many of these plants are being studied in this laboratory with the object of determining the active principles that they may contain and their physiological properties. A preliminary study has been published of an alkaloid-like substance which has been isolated from *Momordica Charantia*, L., a Puerto Rican plant which people use empirically as a cure for diabetes.

Extra Curricular Activities.—During Pharmacy Week, Acting Dean Torres-Diaz gave a radio talk about the History of Pharmacy in Puerto Rico. Professor Menendez gave a lecture on "Uses and Abuses of Sulfanilamide." A joint social meeting was held at the University of the Alumni of the College of Pharmacy, the officials of the Puerto Rico Pharmaceutical Association and the members of the Board of Pharmacy of Puerto Rico.

University of Nebraska, College of Pharmacy.

Junior Division and Terminal Courses.—A one year junior division is in the process of being established. In all the colleges that admit freshman if a student's entrance requirements are lacking in any way he will register in the junior division and put in a year getting ready for college. Requirements for admission to the sophomore year will be set up in addition to entrance requirements to the freshman year. In some colleges, but not in the College of Pharmacy, two year terminal courses are being set up for those who do not want a four year course. It is planned that, eventually, the terminal courses will be given in some other state institution thus saving the resources of the University for more advanced instruction. In the College of Pharmacy some drastic changes are being made which will cover the subject matter better and make for better teaching. A bachelor's thesis will be required of all students in the senior year. The time allowed to the thesis will not exceed more than ten or twelve credit hours and the purpose of it is to permit individual students to develop the thesis along lines of their chief interest in the pharmaceutical sciences. By so doing we believe it will lead students into special lines of research work or graduate study, at least they will be exposed to it. A special committee has been appointed to plan our research program and cooperate in joint research problems with other departments and perhaps with other colleges.

Research.—Researches are being conducted in the following specific fields, psycho-physiological influence of benzedrine sulphate; a phytochemical study of *Artemisia silifolia*, Torr. (Silver Sage); a rapid method for assay of tincture of iodine; phenolic esters of thymotinic acid; sodium morrhuate studies; bioassay of digitalis; sex differences in reaction to drugs including certain effects of sex hormones.

Grants for Special Projects.—During the year a grant was made by the American Medical Association for a special study on certain phases of the digitalis problem and also the further study of the effect of sex on the action of drugs. Dr. Harald Holck was asked to make a study of the literature for a chapter entitled "Dosage of Drugs in Rats" for a book on "The Rat" soon to be published by the Wistar Institute. This project which required a large amount of corroborative experimental work is now completed. The Regents of the University established a fund of \$250.00 to make this study possible. Through the efforts of the University Foundation, an incorporated institution, which was estab-

lished to receive and raise funds for University projects that could not be supported through taxation, a fund of \$1,000 has been raised from local citizens to promote research in the College of Pharmacy. Through the alumni of the College of Pharmacy and assisted by the University Foundation, an effort is now being made to raise a graduate student loan fund for research work in the College of Pharmacy.

Organization of Alumni Groups for Special Projects.—The alumni of the University throughout the country are being organized in local groups, one purpose of which is to assist the University in obtaining funds and special pieces of apparatus and fellowships and scholarships. It is the intention that each local group of alumni supply, during the year, some special object for some department in the University that has a specific need. It is an interesting fact that this request came from the alumni themselves. In a number of instances the alumni have asked that some special objective be named that they could aim at doing this year. We are satisfied from experience that many alumni organizations do nothing simply because they do not know what to do.

Duquesne University, School of Pharmacy.

Pharmacy Night—Student Activities.—We conduct a pharmacy night program every second year which some 3,000 persons attend. On alternate years we take our whole student and faculty group on a trip to Lilly's, Parke Davis, or some other large manufacturing plant. Each year we arrange a conference for teachers of science in high schools which is attended by from three to four hundred teachers. We have recently converted a residence building into a laboratory for physiology and bacteriology. The building contains an animal room, research laboratory, offices, stock room, and sterilizer room in addition to the main laboratory. We are considering the feasibility of arranging to exchange lectures with another school of pharmacy. Wm. E. Lloyd, B. S., Duquesne University, 1936, has been made graduate assistant in Physiology and Bacteriology.

University of Kansas, School of Pharmacy.

Equipment.—A Carver laboratory press has recently been installed, a set of 28 maps both ancient and modern, and a nine-frame Multiplex display fixture has been added.

Historical Material.—Recently there has been added to the collection two very fine specimens of engraved show globes, one hanging, and one standing, as well as a large bronze mortar and pestle which were used during the Revolutionary War. Dr. J. L. Lascoff has presented the school a fine brass mortar and a 12-inch globe and stand. Dr. O. Raubenheimer of Brooklyn has added several unique specimens to the collection of crude vegetable drugs.

Curriculum Changes.—The requirement for graduation has been increased from 130 to 134 credit hours. A five-hour basic course in physiology has been transferred from the optional to the required list of subjects. Credit is allowed to the extent of four hours in either physical education or military science but not in both.

The School offers a one-hour course in materia medica to sophomore medical students. There are 85 in the class which includes twelve who are registered in the Graduate School. The staff of the Medical School

is seriously considering extending this course to two hours. Professor Boughton, who teaches the course, is listed as a member of faculty of the School of Medicine. Professor Spencer has introduced into the course in dispensing pharmacy what he calls an "efficiency rating." All students compound the same prescriptions. A record is kept of the time it takes each student to fill the prescriptions. These prescriptions are graded according to the quality and appearance of the finished product. The grade of each student is determined by the quality of his preparations and the time taken to prepare them. They may all be of grade A quality. If so, the members of the class would appear in the "efficiency rating" numbered in the order according to the time in which they finished the assignment. If some have made mistakes, then it becomes necessary to divide the class into groups. All in group A would take precedence over any of the others. It thus happens that often times the student completing the assignment first is not the first in rating. Once it happened that the student finishing last was the first in rating. We find that this wholesome competition makes more skillful compounders, and that the loss in rating by working faster than they can and do good work, stops them from speeding up too fast. The record of "efficiency rating" is posted each week in the laboratory in which the class works, where all the students can see it.

At the close of the second semester, each of the seniors use their laboratory desks to make a display of the preparations they made during the senior year. They can be as original as they desire and as elaborate as they wish to be in this display. The Kansas State Board of Pharmacy judges these preparations and the attractiveness of the way in which displayed, designating the order in which they are displayed, designating the order in which the first five place. The Dean gives a membership in the American Pharmaceutical Association, to the one placing first. Smaller awards are given the other four. These displays remain in place during commencement for visitors to see. It enables druggists looking for clerks to get some idea of the students' ability in window trimming and quality of workmanship.

Service to Pharmacy and Medicine.—The school continues to co-operate in every possible way with the two University hospitals. Professor Boughton is a member of the student hospital staff, having charge of the dispensary which requires in addition the services of a full-time registered pharmacist.

The Department of Pharmacy recently set up an electrical system for administering copper by iontophoresis to several stubborn cases of athlete's foot. The treatment is progressing under the supervision of Professor Boughton and the hospital physicians.

The class in manufacturing pharmacy under careful supervision prepares medicines in quantities and great variety for use in the two university hospitals. Formula service is also furnished to the druggists over the state upon request.

The School prepared a display for the University of Kansas division of the Resource-full Kansas tent at the National Cornhusking Contest held near Lawrence November 1-3. The exhibit was attended at all times by at least two seniors. The preparation of a tincture by maceration and percolation was the theme for the display and powdered alfalfa was chosen as the drug out of respect to the farm representation at

the contest. Those wishing to do so were given a taste of the finished product. A leaflet describing the problem of plant extraction and giving a list of drug plants that can be grown successfully in Kansas was prepared and eleven thousand of them distributed in the three days.

Seniors and faculty attended the Merchandising Clinic recently held in Topeka under the auspices of the Kansas Pharmaceutical Association. It is the custom of the senior students and department faculty to attend the annual meeting of the Kansas Pharmaceutical Association. It is interesting to note that the state association always pays a considerable part of the expenses of the seniors to this meeting.

The Dean of the School of Pharmacy is Chief of the State Drug Laboratory and another member of the faculty is the analyst. This arrangement gives the school a close tie-up with the State Board of Health and the State Board of Pharmacy since inspectors of both boards are the source of samples for analysis in the Drug Laboratory.

Research.—Long-time feeding experiments of sulfanilamide to rats have just been completed by Roy R. Beyer, '36, for a Master's degree. Professor Boughton has a similar experiment with sulfapyridine well under way.

The State University of Iowa, College of Pharmacy.

Supplements to the United States Pharmacopoeia.—Every effort is made and every opportunity is utilized in the courses in theoretical and practical pharmacy and in pharmaceutical chemistry to bring the Pharmacopoeial supplements to the attention of the student in such a manner that they will become in thought and in use a combination of the Pharmacopoeia rather than a series of commentaries loosely associated with it.

Hospital Pharmacy.—The University maintains three hospitals with a total bed capacity of 1,060. They are always filled. The Pharmacy which is a department of the College of Pharmacy serves the entire plant and is furnished with every convenience including a walk-in refrigerator for the storage of everything requiring refrigeration. During the school year the senior class, under the supervision of the hospital pharmacist and staff, compound and dispense more than 105,000 prescriptions. The bill for these medicines exceeds \$45,000 plus 12 per cent which is charged for overhead. Since hospitals above a specified bed capacity, in order to be registered by the American Medical Association, must have a pharmacy and a pharmacist on duty, an added responsibility falls upon the colleges of pharmacy to train students for hospital service.

Manufacturing Pharmacy.—A new fireproof manufacturing laboratory, 30 by 60 feet in size has just been completed. It is adjacent but does not join the college building. This is an advantage. During the school year students of the third year class make approximately 350 different types of medicinal products which vary in quantity from a few ounces to several hundred gallons, or from a dozen tablets or suppositories to many thousands. The total amount for the year approximates 100,000 pounds. All of these medicines are consumed in the hospitals and other departments, colleges and clinics. The fabrication of these medicines provides an effective teaching unit in which students have an opportunity to learn the fundamentals of pharmaceutical manufacturing. In addition a substantial saving is effected often amounting to as

much as fifty per cent. All manufacturing is carefully controlled and all students engaged in such work are constantly supervised. All parent substances, weights and measures as well as processes are carefully checked by a staff member to avoid error.

The Library.—The freshmen are introduced to the departmental library as a part of the orientation program. Students are urged to develop the habit of reading current journals and their attention is directed to the books that they may choose for recreational reading, the histories and the fiction that touch pharmacy or chemistry. About 150 books were added last year. It is the custom to get everything that is announced that is of any apparent value.

Practical Pharmacy.—The subject matter given is being broadened to include as many phases of practical drug store application as the scope of the course will permit. Students are grouped for display installation, each group of students installing a suitable number of displays in a model window located in the main corridor of the building. These displays are photographed for the purpose of making lantern slides available to be presented before the entire class for critical study. The first semester of the course deals with drug store location, layout and equipment, interior arrangement, departmentization and basic principles of display arrangement. Both interior and window displays are given consideration. The second semester is devoted to show card design and layout, correlated advertising, drug store management and personnel, marketing factors, purchasing and purchase records and such government regulations which pertain to the operating of a successful pharmacy.

Research Projects.—Investigations are carried on by graduate students and the staff. The study of cholesterol in ointments on which two papers have already been published is being continued. Phenolic ointments are now under investigation. This work is being carried on in conjunction with the department of dermatology of the College of Medicine. A study is being made in conjunction with the department of otolaryngology of the College of Medicine of a process for the production of lysozym. Work has also been started on Ti-Tree Oil in conjunction with the department of bacteriology of the College of Medicine.

Pharmaceutical Seminar.—Teachers of pharmaceutical subjects are meeting bi-weekly in a seminar. The purpose is to discuss teaching problems, particularly those relating to the development of proper laboratory technic. Processes and procedures are being taken up systematically in order that the best teaching methods may be employed. One member of the staff, who is also State Toxicologist, is teaching toxicology. He uses for class purposes the material which comes into his hands in the regular performance of his official duties. This method adds a touch of human interest so necessary in successful teaching.

The Connecticut College of Pharmacy.

Library Exchanges.—We have been building up our library and we already have a number of duplicate copies of certain reports and journals that we think other colleges might like. On the other hand we are very anxious to get certain volumes which other libraries may have in duplicate. I wonder if some systematic exchange of lists of duplicates might not be arranged through the American Association of Colleges of Pharm-

acy. I feel sure a redistribution of these volumes would greatly benefit all concerned.

Exchange Professorships.—I recently received from the United States Office of Education in Washington a pamphlet and a letter in regard to a system of exchange fellowships and professorships and this brought the thought to my mind that if some sort of exchange professorships could be arranged thru the American Association of Colleges of Pharmacy it would be of considerable value to the member schools. A man who has taught a number of years in one institution might carry very valuable ideas to another institution during a year's residence there and vice versa would carry back to his own institution the following year many valuable ideas for use there. Personally I would like to see this idea tried out on a small scale if it could be arranged.

Wayne University, College of Pharmacy.

Increase in Staff and New Courses.—Mr. R. L. McCabe, formerly a member of the Michigan Board of Pharmacy, is giving weekly lectures with demonstrations, on sick room and surgical supplies. Mr. Mellen of the Seltzer prescription pharmacy is giving laboratory demonstrations on prescription practice to the class in that subject. Dr. Younkman, Professor of Pharmacology of Wayne University Medical School, is formulating a course in pharmacology with animal demonstrations. Dr. Patterson also of the Medical College is formulating a course with demonstrations in Physiology. Dr. Arthur A. Smith established a course last spring in Physiological Chemistry covering six semester hours. This has been made a requirement.

Library.—Besides books purchased through the medium of the general library grant for the Pharmacy College, gifts of books have been made by Dr. L. Seltzer, Professor H. Blome and Dean R. T. Lakey.

Research.—Studies are being made by graduate students on burbot oil, resin of jalap, anti-oxidants and lard.

Educational Research.—Several projects are under way. Dr. Harry Baker, Psychologist of the Detroit Public Schools is checking the I. Q. and aptitude test on entering pharmacy students against their first year's achievement in pharmacy courses. Professor E. R. Crandall of the pharmacy staff, is testing the three year pharmacy mathematical class by the use of the Leland Stanford achievement test in arithmetical reasoning. Mr. W. H. Blome in collaboration with Prof. Charles H. Stocking of the University of Michigan, has just published a new text, Fundamentals of Pharmacy. Dean Roland T. Lakey, has worked out a program for the fourth year of continuation lectures co-sponsored by the College and the Detroit Retail Druggist Association. He has been active in the field of professional relations helping to establish the Pharmaceutical Association Membership in the Wayne County Medical Society.

Indianapolis College of Pharmacy.

Research.—Graduate work is not offered. The projects mentioned here are at the initiative of the faculty members. In dispensing an investigation is being made on the incompatibility between Elixir of Three Bromides and Magnesia Magma. A quantitative estimation of the ammonia and other alkalies liberated is being made, and a method of overcoming this incompatibility is sought. Work is also being done

on a formula for cod liver oil ointment with improved odor and therapeutic properties. A study was made last year and is being continued again this year to determine whether students entering with high school chemistry credit make better grades in the course than those who do not have high school chemistry. We wish to determine whether those with previous chemistry training should be taught separately, or should be given different work. We are also endeavoring to find the weaknesses in the chemical knowledge of such students. Our results to date show that students with high school chemistry do not make better grades for the year than those who enter with no previous chemistry. In qualitative analysis we are introducing more special tests, especially with organic reagents, and are approaching a semi-micro system. An investigation of Devil's Club root bark is being continued, and we are starting one on the properties and action of *Euonymus* bark.

Hospital Pharmacy.—A course is being developed for the first time this year. This includes lecture and laboratory work at the college and dispensing at the Indianapolis City Hospital where an instructor has been placed in the dispensary. New equipment at the college for this course includes a power type tablet machine, an electric mixer with a capacity of eight gallons of liquid, and a Midget sterilizer.

Purdue University, School of Pharmacy.

Housing Space.—Two additional rooms, one for the work in X-ray and for commercial pharmacy have been provided in the Executive Building.

Library.—The University budget provides six hundred dollars annually for the pharmacy library. Recently gifts of books have been made by the sons of F. W. Meissner of Laporte, and Valparaiso and Notre Dame universities.

Manufacturing and Laboratory Equipment and Health Service.—A vacuum bottle filling machine, copper percolator and several glass-lined tanks are among the recently acquired apparatus. The pharmacognosy laboratory has been completely fitted with modern tables for microscopic work. The manufacturing laboratory has prepared 700 gallons of liquid medicinals, 98,000 capsules, 76 pounds of ointments, 282,000 tablets, and numerous other materials to be dispensed as a part of the Student Health Service. Also as a part of this service last year the senior students dispensed 27,600 prescriptions. The X-ray laboratory also serves the student health service under the direction of three registered pharmacists. In addition, this laboratory develops these pictures and they are then returned to the Student Health Service for diagnosis. In this way the School of Pharmacy is making a real contribution to the student health of the University.

Testing, Research.—During the second semester of 1938-39, the staff tried an experiment in examinations. In the case of four courses, Quantitative Analysis, Organic Chemistry, Pharmacognosy, and Pharmacy, the entire work of examining the students was turned over to a special committee appointed for each course. Each committee was supplied a complete outline of the objectives as prepared by the instructor, a complete set of his lecture notes, and a textbook used in the course. With this material in hand the committee prepared the questions and administered the examinations, each student being designated

by some number unknown to the committee but known to the instructor. The idea back of the experiment was to eliminate any possibility of favoritism or partiality on the part of the instructor in grading the students and to encourage a cooperative spirit between the students and instructor in an endeavor to pass the examination prepared by the committee. The experiment is being continued during the first semester of 1939-40. Some excellent results have been secured by this method of testing. The students were dissatisfied at first but as soon as they realized that the instructor was working with them to prepare them for the tests, this dissatisfaction disappeared. The number of failures in each course was slightly less than normal. The chief drawback to this method of administering the tests is the enormous amount of time required of the committee in preparing, administering and examining the test papers. The experiment has not proceeded far enough for us to draw definite conclusions. Apparently a number of advantages will be secured from it, but the great disadvantage of consumption of time by the committee cannot be overcome unless additional help is secured to mark the papers. We are securing some additional help for this purpose this semester and the burden is not quite so great.

Ferris Institute.

Problem Courses.—A so-called problem course is a requirement for graduation. Students qualified to pursue work of a research nature and inclined to do so, are permitted to take on a project of his choice; others may fulfill the problem course requirement by extra concentration and a special report on some subject listed in the regular schedule; or they may write a thesis correlating two such subjects as physics and its application in pharmacy. In other words, in these problem courses, an attempt is made to make the student do extra work in the field of his special interest and liking, whether it be scientific or commercial. In this regard, this might be an appropriate place to mention that we are strongly inclined to permit one term's credit in typewriting to count toward graduation for those students who plan their work and electives for the commercial phase of pharmacy. If such subjects as commercial art are given consideration in a curriculum of pharmacy, and to which I personally offer no objection, why should not also a term of typewriting be recognized.

Research.—During the past year, we have carried on two main projects of a research nature: one with the help of a fund from the American Medical Association, on the Physiological Effects of Skin Counter-Irritants; and one on the Comparative Protective Value of Glass Vial to Cardboard Boxes against Drug Deterioration. The latter was supported by a fund from Drug Package, Inc., St. Louis, Mo. Special studies are being conducted on the effect of short-wave fields on various drugs and the variation in their potency by such exposure.

Equipment.—A considerable amount of new equipment has been added for the work in pharmacognosy, drug assaying and dispensing, and the library is being improved.

Library.—In an initial attempt a year ago last spring to build up our library, about \$1,000 was spent, and new volumes are now being added as speedily as finances permit.

Botany.—Miss Mary E. Schmidt, instructor in botany, is cooperat-

ing with the Committee on the Teaching of Botany in American Colleges and Universities of the Botanical Society of America in their program of achievement tests in relation to teaching objectives in college botany.

Xavier University, College of Pharmacy.

Steps Showing Progress.—Installation of dispensing units in the dispensing laboratory. Plans are being worked out for the senior class to take part in filling the prescriptions in connection with the University's student health service. Several hundred volumes on pharmaceutical subjects have been added to our library. Details for incorporating the separate courses in food chemistry and in urinalysis, as now offered, into a course in biochemistry, are being worked out. The "Pharmacy Club" organized last year is conducting a meeting each week, at which time papers on subjects pertaining to pharmacy are presented. Guest speakers are invited.

University of Idaho, College of Pharmacy.

The Equipment, Progress and Research.—The faculty meets monthly with the Snake River Branch of the State Pharmaceutical Association. We find that this is creating a splendid understanding between the College and the Association. A new research laboratory with all new equipment has been established in the Pharmacy College for the use of the pharmacy faculty. The University grants a number of non-resident scholarships to students who must have a B average or better. A new manufacturing laboratory has been added with various types of manufacturing machinery related to pharmacy. The faculty members have been making a study of the drugs used by the early pioneers. Our pharmacy enrollment was one hundred seventy for this semester and will probably reach two hundred for the year. This increase in enrollment necessitated the addition of a new member to the faculty.

Ohio Northern University, College of Pharmacy.

The Open House.—The objectives of the open house are to train the student, to acquaint the non-pharmacy groups on our campus with the responsibility and importance of the pharmacist and pharmacy, and to attempt to instill in the minds of the public a greater appreciation for professional pharmacy. All non-pharmacy groups on our campus, students and faculty, are invited to visit the College of Pharmacy on this special occasion. The exhibits are designed to be attractive as well as educational. Guides are selected and trained to serve in a satisfactory manner. Each exhibit is in charge of two or more students, each being responsible for giving a satisfactory explanation of his exhibit. All pharmacy students are required to go through the exhibits as guests before the doors are opened to the public. Pharmacists, dentists, and physicians of this vicinity are sent special invitations to visit the College of Pharmacy on the occasion of open house. The technique of presenting the exhibit is modified to a certain extent in order to adapt it to the interests of the special groups. A general invitation is extended to the public. We aim to provide a program of lectures each year which will be of special interest to graduate pharmacists. It is no small task to provide such a program. Although the task is great, we are of the

opinion that the benefits derived from it are more than commensurable with the efforts involved. It seems to be good for pharmacy and awakens a keen interest on the part of the student to present in a satisfactory manner the objectives of his profession. In other words, the pharmacy student is instructed to sell pharmacy to all the visiting groups as an important division of public health service.

Detroit Institute of Technology, College of Pharmacy.

New Courses, Library, and Equipment.—Toxicology and First Aid have been added. Library space has been increased and new books and periodicals supplied. The prescription laboratory has been improved by making it more compact and arranging it more conveniently. Dr. Bunting has given up his teaching in the Department of Chemistry to devote full time to color photography. Mr. Russell Suter replaces him in chemistry.

The State College of Washington, School of Pharmacy.

Graduate Work.—Extensive changes are being made in graduate work and in introducing for the first time a number of courses of graduate character which will permit of advanced study in the field of pharmacy. Between forty and fifty hours of advanced work are being prepared to be included in the new edition of the catalog to come out within the next few weeks. For the past three or four years the library has been given special attention, and additional books of both local and foreign origin have been added, additional facilities for research work of laboratory character have been installed, and a general endeavor is being made to build up and expand our graduate program. We have planned to make available more fellowships and scholarships in order to encourage graduate work. We have two fellowships held by graduate students. Fellowships range from \$400.00 to \$450.00 per year and carry half-time student assistant work with half-time collegiate load.

Student Organizations.—There are three very active organizations, namely, Lambda Kappa Sigma, Rho Chi, and the Student Branch of the American Pharmaceutical Association. Regular programs are carried out by each organization, and speakers from the outside are brought in to address the members. We find that these organizations can be of excellent service to the school in the orientation of freshmen, in promoting their welfare, and in bringing to the school speakers who have a distinct message for our students. Each of these organizations offer prizes for scholarships and have contributed much to the high standard of scholarship found at this institution.

University of South Carolina, School of Pharmacy.

Educational Program.—Our most outstanding activity as we see it, is our United States Pharmacopoeia and National Formulary program. This educational program was first begun in the spring of 1938. Insofar as I know, our program differs from those in other states and localities, inasmuch as it is sponsored by our University Extension Division in cooperation with the School of Pharmacy and State Pharmaceutical Association. Results up to the present time have been most encouraging. Letters have been and are sent out at regular intervals to both pharmacists and physicians over the entire state,

calling attention to the importance in various ways of prescribing and dispensing official products. Special displays have also been used to good advantage during the annual meetings of our State Medical and Pharmaceutical Associations. In addition, the school participated in the exhibit of the Extension Division of the University during the recent state fair held in Columbia. A specially constructed cabinet containing a collection of official preparations, together with the various pieces of apparatus necessary for the proper compounding and dispensing of prescriptions, formed the background of this exhibit. Adjacent to this cabinet was an illustrated display of pharmaceutical products from the animal kingdom, consisting of both natural and manufactured specimens. Along the front of the booth was a display of some of the commonly used crude vegetable drugs from all five continents, with labels showing the national habitat and common and specific names of each. The primary purpose of this exhibit was to give the public an idea of some of the working tools of the pharmacist along with some of the finished preparations manufactured by our students and to call attention to the importance of pharmacy as a profession.

University of Michigan, College of Pharmacy.

Annual Pharmaceutical Conference.—The college has for the past eight years sponsored a conference at which there has been a distinguished outside investigator or educator in the field of pharmacy. The emphasis has been on the scientific aspects of pharmacy and the related professions.

Student Activities.—The students through Rho Chi, have joined with Alpha Chi Sigma, Phi Lambda Upsilon and Iota Sigma Pi, in sponsoring a graduate pharmacy, chemistry, chemical engineering, and biological chemistry mixer and reception. This annual event, which includes exhibits from the various colleges, has proved to be one of the most successful get-togethers for students in the related branches of chemistry and pharmacy, and has been enthusiastically received by all the graduate students. An all-pharmacy banquet is held each year at which the various prize awards of the College of Pharmacy are presented. Various honors achieved, such as scholarships and honorary societies, are enumerated and this is followed by an inspirational talk, not necessarily pharmaceutical, by some distinguished speaker on the campus. These all-pharmacy banquets have been of the greatest interest. The College of Pharmacy has also sponsored an all-pharmacy dance which has been of particular interest and is comparable to the architect's, engineering, medical and dental balls given by other professional schools.

A Health Science.—The Regents have recognized the relation of pharmacy to the other health professions by the organization of the Division of Health Sciences, which acts in an advisory capacity for all the professional schools in this group. This committee is headed by the vice-president in charge of post-graduate education, himself a medical man, and is made up of the administrative officer of the Dental School, the Medical School, the College of Pharmacy, the Division of Public Health, and the superintendent of the University Hospital. This committee has had regular meetings at which each administrative unit has presented its problems and point of view. The discussion of the

problems of pharmacy was very helpful both to the College and to the groups in presenting the relation of pharmacy to the other health sciences. General problems of the College of Pharmacy are discussed at meetings of this group.

Research.—The College of Pharmacy now has seven research fellowships or grants for the study of organic pharmaceutical problems under the direction of Professor F. F. Blicke. These fellowships, which are held by graduate students who are candidates for the Doctor's degree in the Horace H. Rackham School of Graduate Studies, have been most useful in building up a strong program of graduate work in pharmaceutical chemistry in the College. In addition, special grants from the Faculty Research Fund, and more recently from the American Pharmaceutical Association, have made possible extension of the studies of Professor J. L. Powers on the constituents of plants of pharmaceutical significance indigenous to Michigan. At present the problem is being directed toward a study of the viburums, which is a part of the group program sponsored by the American Pharmaceutical Association. The members of the staff have been active in the writing of revision of important texts. In recent years Professor J. L. Powers has revised, with the aid of the original author, Dr. W. L. Scoville, "The Art of Compounding," which has appeared in its sixth revised edition. Professors C. H. Stocking and J. L. Powers have also published the sixth (revised) edition of "Steven's Arithmetic of Pharmacy." Professor C. H. Stocking and Professor W. H. Blome of Wayne University, College of Pharmacy, have just published a new text, "The Fundamentals of Pharmacy." Various members of the staff of the College of Pharmacy have cooperated actively with the revision of the Pharmaceutical Syllabus.

University of Buffalo, School of Pharmacy

The General Plan.—To see that every high school boy and girl in our area is honestly informed regarding the opportunities for pharmaceutically trained people and the facilities that we possess for giving such training. It is my hope that the spread of a true story about pharmacy may attract more high grade students than we had in the past. (An increase of 150 per cent in the freshman class, 1939, indicates the program is functioning.) To strengthen and inspire our faculty to meet the demands of an expanding scientific and cultural curriculum. To inaugurate a program of service to our alumni and other retailers in the area. We have held two Spring Clinics and will hold a third one in March. The registration at each of our clinics has numbered over two hundred. Apparently this type of service to alumni is in demand all over the country and each school furnishing it reports an enthusiastic response. To integrate our program more closely with that of our other campus divisions. To take our position among the recognized schools of the country and to work like Trojans to extend our sphere of influence.

MISCELLANEOUS ITEMS OF INTEREST

A MEMORIAL

PEARL WEBB JOHNSON

1881-1939

There are only a few persons to whom one may go for friendly and timely council. Such people have the ability to do and say the right words at the correct time and place. Such a person was Mrs. Johnson.

Her interest in people was one of her earliest experiences. She was a "born" teacher and taught in several of the public schools. Many present day scholars owe her memory a debt of gratitude and they respectfully acknowledge it.

Her basic formal education was so thorough that she reached the top. As a result of her scholastic ability the degrees of Bachelor of Arts, Master of Arts and Doctor of Philosophy were conferred upon her by the University of Oklahoma. Her doctorate dissertation was on *The Philosophical Foundation of the Concept of Purpose*. Another outstanding interest was her love of nature. To be with the wonders of nature was a realization of religion to her. Her home was surrounded with many flowers, shrubs and trees.

Pearl Webb was born in Richhill, Missouri, December 17, 1881. She became the wife of David B. R. Johnson, August 14, 1919. As many of her friends knew, she became seriously ill about three years ago. It was only by her inexhaustible faith and courage that she lived until December 10, 1939. Her passing is a genuine loss to all who knew her but to those who knew her best, her going is made less difficult by the realization that the influence of her life will always be with us.

Lloyd E. Harris.

A MEMORIAL

LAIRD JOSEPH STABLER

1865-1939

Dr. Laird J. Stabler, friend, teacher, student, scientist, and philosopher, Dean of the College of Pharmacy of the University of Southern California, died suddenly of a heart attack at his home late Sunday afternoon, November 26, 1939.

He was sitting at his fireside in his favorite chair talking with his sons and perusing some papers when the end came. To those of us to whom he had endeared himself, it is comforting to know that he did not suffer, that he was happy and mentally alert to the last. It was as he would have had it himself.

Dean Stabler was born at Bethany, Ohio, August 27, 1865. His first degree that of Pharmaceutical Chemist was from the University

of Michigan in 1885. After graduation he with two other young men developed one of the most successful retail drug stores in Columbus, Ohio in which approximately two hundred prescriptions were compounded daily. After about a year they developed a manufacturing plant in the basement of the store. This venture proved so successful that they leased a large three story building in order to expand their manufacturing facilities. The organization was known as the Cornell Pheninger Company and Dr. Stabler served it as secretary and chief chemist.

In spite of the financial success enjoyed by the company, Dr. Stabler sold his stock because he wished to pursue further technical studies. Today the Cornell Pheninger Company, known as the Columbus Pharmacal Company, operates one of the most beautiful plants in the United States.

On August 28, 1890 he married Miss Maud Jones of Lafayette, Indiana. He studied at Purdue where he was granted the degree of Bachelor of Science and Master of Science respectively in 1890 and 1892. Shortly after he enrolled at John Hopkins University where he studied under the brilliant Remsen. In 1894 he cast his lot with the University of Southern California with which institution he remained up to the time of his death. He first held the position of professor of chemistry when the chemistry department was one room in the basement of what is now called 'Old College' and which was the one main building of the University. He assisted in the administrative work of the University and was a close counsellor of President George Finley Bovard. He was instrumental in the planning and erection of a new building to house the newly established College of Pharmacy of which he became dean. This was organized by Drs. Ulrey, Taylor, Brunswig, Hill, and Stabler. The departments of chemistry and of pharmacy developed side by side in the old building. Facilities were meagre but in spite of this Dean Stabler carried to a successful completion researches of far reaching value to California and the country in general. Nearly every industry in this region and several of the largest chemical industrial corporations in the east are indebted to him for the technical men who received training under his able guidance and direction. At the end of his first twenty-five years of service the University awarded him the highly deserved honorary degree of Doctor of Science. In 1924 the pharmacy wing of a new science building was erected through his efforts, the funds being donated by certain drug houses and oil interests in recognition of his services in these fields. This building now houses the departments of Pharmacy and Chemistry. At this time, due to the increasing responsibilities of the office of dean of the College of Pharmacy he relinquished the duties of head of the chemistry department and withdrew from teaching in the College of Liberal Arts, still continuing, however, his teaching of chemistry in the College of Pharmacy.

Over forty groups of students have entered the University and received their diplomas during the time of service of Dean Stabler. He conducted research in applied chemistry long before the establishment of the graduate school. In the early days, local industries did not have research departments and the chemistry department of the

University cooperated in the solution of many of their problems. A few of the contributions of Doctor Stabler were,—the preparation of illuminating and fuel gas from petroleum; the preparation of an electrolytic bleach solution for English walnuts; the preparation of briquettes from the waste carbon in the oil gas plant; and the preparation of lubricating oil from California petroleum. In order to prove the practicality of this latter work a small commercial plant was established which was known as the Densmore-Stabler Oil Refinery. In addition he has carried out research and contributed to publications in technical journals on such subjects as electric cyaniding of gold and silver ores, soil and water reports (published in United States geographical records, etc.), research for the city of Los Angeles on sanitary disposal of sewage, investigation of the purity of the source of the water supply of the aqueduct, and during the world war he perfected a catalytic process and operated a plant for the manufacture of potassium permanganate for war needs. He rendered public service by acting as Director of the Los Angeles Board of Health for six years and also served as a trustee of the Los Angeles Public Library for four years.

One could write indefinitely about this kindly, unassuming, versatile, brilliant personality. Everything written would be good. He was self effacing to a fault. He covered his wide range of knowledge with a cloak of modesty. We who were fortunate in being associated with him will always remember his appealing mannerisms, his kindly, fatherly interest in our welfare, his openmindedness to all controversial issues and problems, and his freedom from prejudice. *He was the College of Pharmacy.* We will always remember him.

Alvah G. Hall.

List of Accredited Colleges of Pharmacy in the United States of America

Issued by the
American Council on Pharmaceutical Education, Inc.

January 1, 1940

(As of December 1, 1939, and Subject to Annual Revision)

Scope of List

The list of accredited colleges of pharmacy published herewith includes only institutions operating in the United States proper. It is expected to extend this list to include the colleges of pharmacy operating in the possessions of the United States as soon as a satisfactory plan for so doing can be worked out.

On December 1, 1939, there were seventy colleges of pharmacy in the United States proper offering systematic instruction leading to a degree in pharmacy. Of this number, sixty-two made application to the Council for accreditation.

Auspices Under Which Prepared

This list of accredited colleges of pharmacy has been prepared by the American Council on Pharmaceutical Education, Inc., organized in 1932 and sponsored and authorized by the American Pharmaceutical Association, the National Association of Boards of Pharmacy and the American Association of Colleges of Pharmacy. Each of these associations has three representatives on the Council and there is one representative from the American Council on Education who acts in an advisory capacity. The present membership of the Council is as follows:

Representing the American Pharmaceutical Association:

E. F. Kelly, President, Washington, D. C.

H. A. B. Dunning, Baltimore, Md.

David F. Jones, Watertown, S. D.

Representing the National Association of Boards of Pharmacy:

H. C. Christensen, Vice-President, Chicago, Ill.

A. C. Taylor, Washington, D. C.

R. L. Swain, New York, N. Y.

Representing the American Association of Colleges of Pharmacy:

A. G. DuMez, Secretary-Treasurer, Baltimore, Md.

Townes R. Leigh, Gainesville, Florida.

C. B. Jordan, Lafayette, Indiana.

Representing the American Council on Education:

David A. Robertson, Baltimore, Md.

The activities of the Council up to 1938 were confined largely to work incident to the drafting of standards to be used as a basis for accreditation. Since 1938, the Council has been engaged in applying these standards to the colleges from which applications for accreditation were received. In each case, application for accreditation has been a voluntary act on the part of the college making such application.

Basis for Accrediting

The Council has used as the basis for accrediting the standards which were adopted August 15, 1937. More than five years were devoted to the preparation of these standards and, in their preparation, the Council had the cooperation of the colleges of pharmacy, the state boards of pharmacy, the American Pharmaceutical Association, the National Association of Boards of Pharmacy, the American Association of Colleges of Pharmacy, the American Council on Education, the departments of education of some of the states and of a number of individuals who have manifested an interest in pharmaceutical education. As a final test of the practicability of these standards, trial inspections were made of seven colleges of pharmacy, including at least one representative from each of the three types, i. e., independent colleges, university colleges, affiliated colleges.

In the actual application of these standards to the colleges which have sought accreditation, the Council has not insisted on strict conformity in every detail, but has assumed the attitude that certain reasonable variations should not mitigate against a favorable decision. It has held to the principle that excellence in certain features of a college may compensate for deficiencies in other features.

In all cases, both qualitative and quantitative, criteria have been used in determining the acceptability of a college for accreditation.

Quantitative criteria have been evaluated largely through data secured from catalogues, and other publications and from the information given on extensive questionnaires completed by the respective colleges. These criteria include the following:

1. Auspices, organization and control of the institution.
2. Finances. Source of income and expenditures.
3. Age of the institution and of the four year curriculum.
4. Basis of requirement for admission of students.
5. Number enrolled.
6. Curricula and degrees offered.
7. Attendance, promotion and graduation requirements.
8. Teaching staff and teaching load.
9. Physical facilities.
10. Etc.

Qualitative criteria have been evaluated in part through the information obtained from questionnaires and in part through visits of inspection by committees consisting of at least two members of the Council. These criteria include the following:

1. Qualifications, experience, scientific or scholarly publications of the members of the faculty. Also their contacts with scientific and professional societies.
2. Standards and quality of instruction.
 - a. In the pharmacy departments.
 - b. In the cooperating departments.
3. Scholastic records of students.
4. Extra curricular activities. Participation in the work of local, state and national pharmaceutical organizations.
5. Attitude and policy of administration toward its college of pharmacy and toward teaching, research, etc.
6. Etc.

Purpose of Accrediting

The primary objectives of accrediting as held by the Council are as follows:

1. To advance the standards of pharmaceutical education in the United States.
2. To indicate the character of the institutions offering instruction in pharmacy.
3. To provide a safe basis for the selection of pharmacy colleges by prospective students.
4. To provide a usable basis for the interpretation of inter-institutional relationships.
5. To provide a list of acceptable colleges of pharmacy for the use of state boards of pharmaceutical examiners and other interested agencies.

Period of Accreditation

The Council recognizes that standards for accreditation can not be fixed and inflexible, that there is need for constant revision and improvement of policies and procedures, and that reinspection of the colleges at definite intervals will be necessary to make effective any changes in these policies. It is not likely, however, that a general reinspection of

colleges will be undertaken before 1944, at the end of which year the requirement which makes it necessary for a college to receive at least twenty percent of its income from sources other than student fees will become effective. This will require an investigation of the sources of income of the colleges already accredited as well as those which may seek accreditation in the future and would seem to be a logical time for reinspection. For the present it may, therefore, be assumed that in general the colleges listed below, except those specifically otherwise designated, are accredited for a period of four years from January 1, 1940. This list should not, however, be construed as indicating that the Council accepts each college as meeting its standards of accreditation in all respects and to the same extent and degree, but rather that each of them conforms to a general level which meets the spirit and purpose of the Council. Some of the colleges listed will require additional inspection within the next two years in order to satisfy the Council that they are adhering to its standards.

Accredited Colleges of Pharmacy

(The colleges starred are listed subject to reinspection in 1942)

Alabama

Alabama Polytechnic Institute, Department of Pharmacy
School of Chemistry and Pharmacy

California

University of Southern California, College of Pharmacy

Colorado

University of Colorado, College of Pharmacy

Connecticut

*Connecticut College of Pharmacy

District of Columbia

George Washington University, School of Pharmacy
Howard University, College of Pharmacy

Florida

University of Florida, School of Pharmacy

Georgia

University of Georgia, School of Pharmacy

Idaho

University of Idaho, Southern Branch, College of Pharmacy

Illinois

University of Illinois, College of Pharmacy

Indiana

Purdue University, School of Pharmacy

Iowa

Drake University, College of Pharmacy
State University of Iowa, College of Pharmacy

Kansas

University of Kansas, School of Pharmacy

Kentucky

Louisville College of Pharmacy

Louisiana

Loyola University, New Orleans College of Pharmacy

Xavier University, College of Pharmacy

Maryland

University of Maryland, School of Pharmacy

Massachusetts

Massachusetts College of Pharmacy

Michigan

University of Michigan, College of Pharmacy

*Detroit Institute of Technology

College of Pharmacy and Chemistry

*Ferris Institute, College of Pharmacy

*Wayne University, College of Pharmacy

Minnesota

University of Minnesota, College of Pharmacy

Mississippi

University of Mississippi, School of Pharmacy

Missouri

St. Louis College of Pharmacy

Montana

Montana State University, School of Pharmacy

Nebraska

Creighton University, College of Pharmacy

University of Nebraska, College of Pharmacy

New Jersey

Rutgers University, New Jersey College of Pharmacy

New York

Columbia University, College of Pharmacy

Fordham University, College of Pharmacy

University of Buffalo, School of Pharmacy

North Carolina

University of North Carolina, School of Pharmacy

North Dakota

North Dakota Agricultural College, School of Pharmacy

Ohio

Ohio State University, College of Pharmacy

University of Toledo, College of Pharmacy

Western Reserve University, School of Pharmacy

Oklahoma

University of Oklahoma, School of Pharmacy

Oregon

Oregon State College, School of Pharmacy

Pennsylvania

Duquesne University, School of Pharmacy

Philadelphia College of Pharmacy and Science

Temple University, School of Pharmacy

University of Pittsburgh, School of Pharmacy

South Carolina

Medical College of the State of South Carolina,
School of Pharmacy

University of South Carolina, School of Pharmacy

South Dakota

South Dakota State College of Agriculture and
Mechanic Arts, Division of Pharmacy

Tennessee

University of Tennessee, School of Pharmacy

Texas

University of Texas, College of Pharmacy

Virginia

Medical College of Virginia, School of Pharmacy

Washington

State College of Washington, School of Pharmacy

University of Washington, College of Pharmacy

West Virginia

West Virginia University, College of Pharmacy

Wisconsin

University of Wisconsin, School of Pharmacy

Released January 10, 1940, on authorization of the American Council on Pharmaceutical Education, Inc.

A. G. DuMez, Secretary-Treasurer.

The Rho Chi Society

A few years ago, the history of Rho Chi was well presented by Dr. Glenn L. Jenkins. There is no reason for repeating information brought out in that article¹ which told of its establishment at the University of Michigan as the Aristolochite Society, its objectives and something of its later development. Names of those who had held national offices and a list of the Chapters was included.

¹Journal of the American Pharmaceutical Association (21) (1932) 1033.

Since then four Chapters have been added and the total membership has grown to over 1,700. Chapters are located in the following schools: Universities of Michigan, Oklahoma, Iowa, Wisconsin, Southern California, Florida, North Carolina, Minnesota, Maryland, Texas, Washington, Ohio, Illinois, Mississippi, and Western Reserve, State Colleges of Oregon, Washington, North Dakota and South Dakota, Alabama Polytechnic Institute, Medical College of Virginia, North Pacific College and Massachusetts College.

All Chapters have prizes of some sort or another for high scholarship, for the most part awarded to freshmen students. The Society is setting aside funds, as it can, for the establishment of a research scholarship. It is safe to say that all colleges that have Chapters feel that the Society is attaining its objectives to a considerable degree.

Officers of the Society are: president, Professor Zada M. Cooper, State University of Iowa; vice-president, Professor Louis Wait Rising, University of Washington, Seattle; secretary-treasurer, Professor Loyd E. Harris, University of Oklahoma. Members of the Council; Dean William F. Sudro, North Dakota State College; Professor Leroy D. Edwards, Western Reserve University; Professor George W. Hargreaves, Alabama Polytechnic Institute; and Dr. Minnie M. Meyer, State College of Washington.

ZADA M. COOPER
State University of Iowa

The 1939 Meeting of the Rho Chi Society

The Annual Dinner sponsored by Rho Chi Society was held in the main dining room of the Georgian Terrace Hotel in Atlanta, Georgia, at 7 p. m. on August 22, 1939. One hundred thirty-seven members and guests were present and a typical southern dinner was enjoyed. Dean E. R. Serles, president of the American Association of Colleges of Pharmacy brought greetings from that organization to the Society. Dean H. C. Newton of the Massachusetts College of Pharmacy, and a charter member of the newly installed chapter at that institution, talked on what the new chapter expected to give and receive from Rho Chi.

The annual convention was convened after a brief recess following the dinner. Delegates from twenty-one chapters were present and gave reports of their respective activities during the past year. All chapters are making genuine contributions to the schools and colleges with which they are affiliated.

President Zada M. Cooper, the State University of Iowa, presided during the meeting. Dr. L. Wait Rising was installed as national vice-president and Loyd E. Harris was installed to serve another term as secretary-treasurer. Dr. Minnie Meyer from Washington State College and Dr. G. W. Hargreaves were elected to serve as council members for a two year period.

Schools of Pharmacy having membership in the A.A.C.P. are eligible

to petition for a chapter of the Society. Information may be received by writing to the president or secretary.

University of Oklahoma
LOYD E. HARRIS

Report of the Committee on Endowment of the National Drug Trade Conference

At our 1938 meeting the Committee on Endowment referred to a recommendation of the Resolutions Committee, presented at the December 1937 meeting, which was unanimously accepted by the conference. This recommendation read as follows:

"That it be the recommendation of the National Drug Trade Conference that the industries represented therein give serious consideration to providing endowment and research grants for colleges of pharmacy and that constituent members be requested to appoint committees to contact the American Association of Colleges of Pharmacy with a view to placing endowment and research grants to best advantage."

In reviewing this recommendation, the Committee on Endowment commented as follows:

"The latter part of the resolution indicated what the Resolution Committee considered to be the best manner of handling such a project. The adoption of the recommendation put the Conference on record as favoring such a procedure.

"It seems clear to our committee, therefore, that all we can do for the moment, is to urge our constituent members to appoint the committeemen recommended and to offer our full cooperation in helping to carry out whatever project they may see fit to undertake.

"Any other attitude than this on the part of the Committee on Endowment could be interpreted only as a lack of appreciation of a formally recorded wish of the conference.

"We therefore suggest that in accordance with the resolution adopted in 1937 our members appoint their committeemen to represent them in this matter."

Your committee again recommends that our constituent members each appoint one representative to cooperate with the Committee on Endowment in this important project.

Your committee further recommends that this representative group constitute the Drug Trade Conference's Committee on Endowment. Such a representative committee would be in a position to construct a program, acceptable to all our members, which might be put into operation with little delay. We feel that sufficient groundwork has now been done to enable a suitable program to be pushed rapidly forward.

Your committee wishes to commend Dr. E. L. Newcomb for his interest and activity in stimulating pharmaceutical manufacturers to

more adequately support pharmaceutical education. Dr. Newcomb was responsible for a meeting of persons interested in this objective who met in New York City on Tuesday, November 28th.

The chairman of your Committee on Endowment was privileged to attend this meeting and feels that much good was accomplished.

In conclusion, may I repeat, for the sake of emphasis, that this committee should bring in a report of real progress at our next meeting, providing its objectives and membership are definitely clarified.

With this thought in mind, we offer the following resolution for your consideration:

RESOLVED, that the Committee on Endowment of the Drug Trade Conference be composed of one representative from each of our constituent members. Be it further resolved that this committee be requested to cooperate as closely as seems feasible with the National Wholesale Druggists Association in its recent project as initiated and promoted by Dr. Newcomb, and with the American Association of Colleges of Pharmacy as well.

Washington D. C.

December 2, 1939

Committee on Endowment

S. B. PENICK

ERNEST LITTLE, Chairman

Report of Eighth Educational Conference, October 26-27, 1939, New York City

This conference was under the joint auspices of The Educational Records Bureau, the Co-Operative Test Service, the Committee on Management and Guidance of the American Council on Education, together with the Commission on the Relation of School and College of the Progressive Education Association. Although definite information as to the total registration could not be had, the attendance at the two sessions which I attended was approximately two hundred.

Chairmen of the several sessions were Henry Chauncey (Harvard College), Elizabeth Johnson (Bryn Mawr), Stanley R. Yarnell (Germantown Friends School), Herbert E. Hawkes (Columbia College), Burton P. Fowler (Tower Hill School), Milton E. Loomis (New York State Education Department) and Hart Fessenden (Fessenden School).

The program consisted of the following papers and addresses: "Modernizing Records for Guidance and Transfer," E. R. Smith; "The College Admissions Situation Today," W. H. Cowley; "Major Problems in Occupational Adjustment," Edwin A. Lee; "The Selection of Teachers from the National Viewpoint," A. J. Stoddard.

Perhaps the bulk of the material offered at this conference had but little application to pharmaceutical education excepting in the very general aspect that all basic educational technics stem from the same root and strive for the same broad objectives. Several papers dealt with the mechanical details of records and thus were probably of great interest

to registrars. Others dealt with the problems of the secondary schools.

In my opinion the address having the greatest relationship to pharmaceutical education was that by Cowley dealing with college admissions. President Cowley holds that the admission system based upon the requirements of a certain number of units' credit for secondary school study is the easiest way out. It came into being as a readily fixed basis of what constituted adequate preparation, as a means of eliminating low standard colleges and because of its utility in evaluating credits for transfer purposes. The secondary schools have never been in sympathy with the procedure but have acquiesced. Several colleges and universities have adopted various alternative admission procedures and the tendency appears on the increase. The system places a premium on the amount of preliminary education but does not measure ability accurately. Personally he asks but two things of preliminary education. First that it give the college applicant a knowledge of English in speaking, writing, reading and full comprehension. Second, that it be of such a nature as to impart habits of concentration, study and application.

A full report of the proceedings will be published in the *Educational Record* at an early date.

CHARLES W. BALLARD
Columbia University

Announcement of the Kilmer Prize

Dr. Frederick B. Kilmer bequeathed to the American Pharmaceutical Association the sum of three thousand dollars, to be held in trust, the income to be applied to the awarding of a prize to be known as "The Kilmer Prize" for meritorious work in pharmacognosy, preference to be given to studies in vegetable drugs.

The Chairman of the Kilmer Prize Committee of the American Pharmaceutical Association hereby announces the offering of the Kilmer Prize by the Scientific Section, the award to be made during the annual meeting of the Association at Richmond, Va., in May of 1940.

The purpose of the prize is to encourage recent graduates of pharmaceutical institutions to assume an active interest in research in pharmacognosy.

RULES ON ELIGIBILITY

1. The author of a paper on some phase of pharmacognosy, who is a member of the last graduating class, prior to the annual meeting of the American Pharmaceutical Association, of any college or school of pharmacy, is eligible for the award. Candidates for advanced degrees are not eligible for this award. Accordingly, students entering into competition for this prize must be members of the present senior class of a pharmaceutical college or a school of pharmacy of a University.

2. Papers eligible for the award may be based upon either laboratory or library research or both. They must be written during the last year of the candidate's course in pharmacy and be submitted in triplicate.

3. The head of the pharmacognosy department in each school shall select the one to three best papers submitted by the graduating class of his particular school.

4. Each school or college is privileged to send these papers to the Secretary of the American Pharmaceutical Association, 2215 Constitution Ave., Washington D. C., toward the end of the school year. In order to be entered for the 1940 award, they must be received by the Secretary *not later than April 1, 1940*. The paper or papers submitted must not reveal the identity of the school nor any of the teachers connected therewith and must be the outcome of the student's own work. A sealed envelope containing the summer address of the author and a certified statement from an officer of the institution that the contestant is a full fledged senior and candidate for graduation in June 1940, must accompany each paper.

5. The Kilmer Prize Committee will select the winner from these groups of papers submitted by the various schools of pharmacy. The winner will be notified about two weeks prior to the date of the meeting at Richmond, Va., in May 1940, to enable him or her to make plans incident to his or her attendance.

6. If the Committee finds no paper sufficiently meritorious, no award will be made.

The Kilmer Prize consists of a gold key, suitably inscribed. The difference between the cost of the key and the annual income from Dr. Kilmer's bequest, amounting to about \$60.00, will be awarded the winner in cash to assist him in attending the annual meeting of the Association to receive the award.

Applications should be made to Heber W. Youngken, Chairman, 179 Longwood Ave., Boston, Mass.

American Association for the Advancement of Science

PROGRAM

SUB-SECTION ON PHARMACY (N-2)

Columbus, Ohio, December 27, 1939

1. The Chemistry of the Viburnums. Justin L. Powers, University of Michigan.
2. Methenamine Mandelate: Preparation, Toxicity and Antiseptic Value. Glenn L. Jenkins, University of Minnesota.
3. The Bioassay of Aconite. B. V. Christensen and J. W. Nelson, Ohio State University.
4. The Use of Oral Vaccine in the Prophylaxis of the Common Cold. Leonard J. Piccoli, Fordham University.
5. *Solanum Carolinense*. R. L. Murray, Ohio State University.
6. A Method for the Determination of Peptic Activity. Carl J. Klemme and Lee F. Worrell, Purdue University.
7. Employee Predictive Tests. C. M. Brown, Ohio State University.
8. The Pharmacology of Soaps. Leroy D. Edwards, Western Reserve University.
9. A Criterion for Distinguishing between Virgin and Parous Animals. Richard A. Deno, Rutgers University.
10. The Uterine Sedative Action of Viburnums. James C. Munch.

ABSTRACT OF PAPERS REPORTED BY B. V. CHRISTENSEN
AND GLENN L. JENKINS

Dr. J. L. Powers cited evidence of the presence of A and B-amyrins in *Viburnum opulus*. There are some reasons to believe that both *Viburnum opulus* and *Viburnum prunifolium* contain alkaloids. No indication of glycosides was found in either of the viburnums. The isolation and characterization of a crystalline tannin from *Acer spicatum* was described.

Dr. James C. Munch presented evidence that *Viburnum prunifolium* has a sedative action on the uteri of animals as well as humans. He pointed out that differences of opinion which have existed for many years relative to the sedative action of the viburnums may be attributed to the adulteration of the commercial plant material.

Dr. B. V. Christensen and J. W. Nelson cited evidence to show that aconitine is the principal analgesic constituents of aconite. They also pointed out that since the chief uses of aconite are based on its analgesic effect a method of assay which would indicate the potency of aconite preparations in terms of its analgesic constituents should prove satisfactory. The pigeon-emesis method is proposed and evidence presented to indicate that this shows possibilities of reliability and practical use.

Dr. Leonard J. Piccoli showed that the use of oral vaccine in the prevention of the common cold reduced the incidence of cold forty to sixty per cent. in the cases studied and that colds contracted by vaccinated individuals were mild and of short duration.

Dr. R. L. McMurray and R. D. Little presented data covering an analysis of *Solanum carolinense* (Horse Nettle Berries), comprising complete analysis of the ash and showing the presence of alkaloids.

Prof. C. M. Brown discussed tests used and methods of scoring in selection of clerks on the basis of specific traits considered to be desirable and which determine success as drug clerks. A list of thirty-five traits previously determined was taken as a starting point and all strictly professional requirements were deleted. The remaining traits, ten in number, are being used in this study and an effort is being made to determine their relative importance.

Dr. C. J. Klemme and Lee F. Worrell recommended a method for the determination of peptic activity. They found that as long as the same lot of casein was used, substrates could be prepared from time to time which gave reproducible values for the amount of digestion caused by a constant amount of pepsin. When different lots were used slight variations in the amount of digestion occurred. Thirty minutes is recommended as the time for digestion at 55° C. The proposed method was outlined in detail.

Dr. Leroy D. Edwards—The Pharmacology of Soaps—A modified patch test which enables the establishment of contact of a soap solution with human skin has been developed. Using this method the irritant actives of sodium and potassium soaps of single fatty acids, alkyl sulfates and refined fixed oils have been studied. The results may be summarized as follows:

Fatty Acids—most irritant—Lauric Myristic.

Alkyl Sulfates—most irritant—Lauryl Myristyl.

Refined Oils—most irritant—Cocoanut.

Dr. Richard A. Deno outlined A Criterion for Distinguishing between Virgin and Parous Animals.

In certain parous rodents a prominent feature of the involution of the uterus is the appearance of aggregates of hemosiderin-laden macrophages at each area of placental attachment. These aggregates appear macroscopically as brown spots at the base of the mesentery, one spot for each former placental attachment. They are prominent from the second week post-partum, and persist for over a year, probably throughout the entire life of the animal.

Microscopic study of sectioned and stained uteri, one year post-partum, shows that each spot consists of macrophages filled with brown granules of hemosiderin. Hence a local blockade of these reticulo-endothelial cells is achieved, and this persists for long periods.

In rodents which show these spots, virgins can be distinguished from parous animals by an examination of the uterus. Animals of unknown origin can thus be certified as to virginity.

The spots are characteristic of parous rats and mice; they are not characteristic of parous guinea pigs or rabbits. The situation in other rodents and rodent-like animals is not known, but from the four species that have been studied, it can be said that the involution of the uterus is not identical in all rodents.

Dr. Glenn L. Jenkins reported that the well known urinary antiseptic, mandelic acid, yielded a salt with methenamine that was non-toxic when administered orally to rabbits and which exhibited marked antiseptic activity in urine by *in vitro* tests.

LIST OF THOSE ATTENDING THE COLUMBUS MEETING

- Bacon, F. J.—Western Reserve University, Cleveland, Ohio
 Botts, Charles W.—Wm. S. Merrell Co., Cincinnati, Ohio
 Brown, C. M.—Ohio State University, Columbus, Ohio
 Busch, Oliver W.—University Hospital Pharmacy, Cleveland, Ohio
 Christensen, B. V.—Ohio State University, Columbus, Ohio
 Deno, R. A.—Rutgers University, Newark, N. J.
 DuMez, A. G.—University of Maryland, Baltimore, Md.
 Edwards, Leroy D.—Western Reserve University, Cleveland, Ohio
 Eyer, Don L.—student, Ohio State University Coll. Pharm., Columbus, Ohio
 Failer, Josephine Sitterle—Columbus, Ohio
 Ford, M. N.—Ohio Board of Pharmacy, Columbus, Ohio
 George, J. G.—Mallinckrodt Chemical Co., St. Louis, Mo.
 Graham, Katherine—Sears, Roebuck and Co., Chicago, Ill.
 Henry, C. M.—High-Mithoff Pharmacy, Columbus, Ohio
 Henry, R. J.—Columbus, Ohio
 Holtman, Frank—Dept. of Bacteriology, Ohio State University
 Hudson, H. Lea—Lea and Febiger, Philadelphia, Pa.
 Israel, John B.—Ackerman Pharmacy, Columbus, Ohio
 Jenkins, Glenn—University of Minnesota, Minneapolis, Minn.
 Jordan, E. P.—American Medical Association, Chicago, Ill.
 Keys, Vic—Secretary, Ohio State Pharmaceutical Assn., Columbus, Ohio
 Kinsley, Dale L.—School of Pharmacy, University of Florida, Gainesville, Fla.

- Klemme, Carl J.—Purdue University, Lafayette, Ind.
 Kuhn, H. Dale—Shelby, Ohio
 Lager, Roger K.—University Hospitals of Cleveland, Ohio
 Lefevre, Herbert F.—Purdue University, Lafayette, Ind.
 Lyman, Rufus A.—University of Nebraska, Lincoln, Neb.
 Maize, Roger F.—Columbus Pharmacal Co., Columbus, Ohio
 McClarren, R. M.—Ohio State University, Columbus, Ohio
 McClintock, C. W.—Laboratory Supply, Ohio State University, Columbus, Ohio
 McMurray, R. L.—College of Pharmacy, Ohio State University, Columbus, Ohio
 Muldoon, Hugh C.—Duquesne University, Pittsburgh, Pa.
 Munch, James C.—Temple University, Philadelphia, Pa.
 Nicklaus, Charles E.—Columbus Pharmacal Co., Columbus, Ohio
 Piccoli, L. J.—College of Pharmacy, Fordham University, New York
 Powers, J. L.—University of Michigan, Ann Arbor, Michigan
 Reese, J. A.—Medical College of Virginia, Richmond, Va.
 Reese, W. L.—Pharmacist, Ohio State University, Columbus, Ohio
 Ritchie, Alice L.—Christ Hospital, Cincinnati, Ohio
 Rudd, Wortley F.—Medical College of Virginia, Richmond, Va.
 Ruff, Lowell—Pharmacist, Ohio State University, Columbus, Ohio
 Russell, D. M.—State Teachers College, Framingham, Mass.
 Sachs, Nathan R.—College of Medicine, Ohio State University, Columbus, Ohio
 Sandground, J. H.—Eli Lilly and Co., Indianapolis, Ind.
 Scott, Evelyn Gray—St. Luke's Hospital, Cleveland, Ohio
 Soule, Malcolm H.—Hygienic Laboratory, University of Michigan, Ann Arbor, Mich.
 Stephens, Robert K.—Professional Service Pharmacy, Columbus, Ohio
 Stevens, W. S.—College of Pharmacy, Ohio State University, Columbus, Ohio
 Stimson, Russell H.—Huron Road Hospital, Cleveland, Ohio
 Tippet, Nelson—Columbus Pharmacal Co., Columbus, Ohio
 Ulicny, Harry P.—College of Pharmacy, Ohio State University, Columbus, Ohio
 Warner, Richard S.—College of Pharmacy, Detroit Institute of Technology, Detroit, Mich.
 Weiss, Lawrence—Lemmon's Pharmacy, Columbus, Ohio
 Wendt, Wm. C.—Wendt-Bristol Co., Columbus, Ohio
 Wilson, C. L.—College of Pharmacy, Ohio State University, Columbus, Ohio
 Wilson, R. C.—College of Pharmacy, Athens, Ga.

The Pharmaceutical Syllabus and Its Revision VII.

At a series of meetings held in Atlanta the Syllabus Committee defined the object of the course in pharmacy and established the criterion for the selection of courses as minimum requirements in the four year curriculum. These courses were defined and acted upon by the Committee. A joint meeting was held at Baltimore on December

6, 1939 with the American Council on Pharmaceutical Education and a delegation from the Syllabus Committee. At this time the definitions and list of required courses as recommended by the Committee were presented to the Council. The action taken at this meeting will be transmitted at an early date to the faculties of the Schools of Pharmacy and other interested groups and persons for their examination and comments.

HENRY M. BURLAGE, Chairman.

National Drug Trade Conference

The annual meeting of the National Drug Trade Conference was held in Washington, D. C., at the Washington Hotel, December 2, 1939.

The meeting was attended by delegates from all of the nine national pharmaceutical associations comprising the Conference and by a number of visitors.

The American Association of Colleges of Pharmacy was represented by its appointed delegates: W. F. Rudd of the Medical College of Virginia, J. Lester Hayman of the University of West Virginia and A. G. DuMez of the University of Maryland. W. Paul Briggs of George Washington University, Ernest Little of Rutgers University and Glenn L. Jenkins of the University of Minnesota also attended.

The reading and disposition of the following reports constituted the major part of the program:

- (1) Report of Special Committee on Food and Drug Legislation and Regulations Thereunder, with emphasis on the model state act approved at the 1938 meeting of The National Drug Trade Conference, by Robert P. Fischelis.
- (2) Report of the Committee on Information Regarding the Distribution of Drugs and Medicines, by Robert P. Fischelis.
- (3) Report of the Committee on the Status of Pharmacy in National and State Public Health Programs, by Robert L. Swain.
- (4) Report of the Committee on State Narcotic Acts, by Robert L. Swain.
- (5) Report of the Councilor to the U. S. Chamber of Commerce by Frederick Cullen.
- (6) Report of the Committee on Endowment: by Ernest Little.
- (7) Report of the Committee to Prepare a Table of Potent and Toxic Drugs, by Robert P. Fischelis.
- (8) Report of the Committee on General Status of Pharmacy, and the Drug Trade, by J. Lester Hayman.

The Committee on State Narcotic Acts was discharged on its own recommendation following the receipt of its report.

The report of the Committee on Endowment, read by Dean Ernest Little, produced a lively discussion in which most of those present took part. During this discussion, it was announced that a meeting of some forty to fifty representatives of manufacturers and wholesalers had been held in New York, N. Y., during the previous week for the purpose of discussing this subject and that the sentiment of those in attendance favored the giving of financial aid to the colleges in need

of such aid and to others for the prosecution of research, etc. A committee of ten members of the Conference was appointed to cooperate with this group.

Mr. Carson P. Frailey, Secretary of the American Drug Manufacturers' Association, was re-elected President of the Conference and Mr. Rowland Jones, Jr., Washington Representative of the National Association of Retail Druggists, was re-elected Secretary-Treasurer. Dean A. G. DuMez of the University of Maryland was re-elected a member of the Executive Committee.

A. G. DuMEZ.

New Books

FUNDAMENTALS OF PHARMACY by Walter H. Blome, Ph.C., M.S., M.A., Wayne University, College of Pharmacy and Charles H. Stocking, Ph.C., M.S., University of Michigan, College of Pharmacy. 1939. 364 pages. 157 illustrations. Lea & Febiger. Price \$4.50.

It is at least refreshing, to say, inspiring, would not be an exaggeration, to see a book dealing with the theoretical aspects of pharmacy appear from the pens of well known authors, that is not loaded with material carried over from the pages of the United States Pharmacopoeia and the National Formulary, or even more ponderous volumes. The authors express belief that every student of pharmacy and every practicing pharmacist should possess and use as such, the standard reference works, but obtain the foundation for a knowledge of pharmacy from a text unencumbered with extraneous material. Considerable historical material has been introduced to provide an interesting background and to encourage the student to do further reading in that fascinating field. Bibliographical references are also listed throughout the text as guides to those who wish to expand their knowledge of pharmacy. A brief but important chapter is entitled The Pharmacist's Library. This subject is unique in a textbook of pharmacy and deserves further development. A chapter on hospital pharmacy by Edward C. Watts, Assistant Chief Pharmacist of the University of Michigan Hospital, is very timely in this day of the increasing importance of the hospital pharmacist. The illustrations are well selected and well made and enhance the value of the book as a teaching aid. The book deserves consideration as a classroom text.

HANDBOOK OF BACTERIOLOGY by Joseph W. Bigger, M.D., Sc.D., Professor of Bacteriology and Preventative Medicine, University of Dublin; Bacteriologist, Sir Patrick Dun's Hospital and the Royal City of Dublin Hospital; Examiner, National University of Ireland, Queens University of Belfast and Royal College of Physicians in Ireland. Fifth edition. 1939. 466 pages. 100 illustrations. 5 colored plates. The Williams and Wilkins Company. Price \$4.25.

In the first edition of this text the author states that the object in writing it was to supply accurate information in a form suitable to students of medicine. The demand for such a book came as a request from students themselves as a result of their inability to comprehend the more comprehensive texts in the brief time allotted to the subject. As a result of being pushed for time the student resorts to the use of quiz compends and the study of one of the fundamental subjects in basic science degenerates into a memory course. This book was written with the needs of the student in mind in order to give him an intelligent approach to the field of bacteriology and an appreciation of the practical application of the science to the problems of medicine. While it was written primarily for medical students, its methods are equally applicable to the student of pharmacy. A text which in fourteen years has required five editions and three reprintings and one edition in the Spanish language must have filled a teaching need in the minds of teachers of bacteriology. The fifth edition has been largely rewritten and the newer knowledge included.

THE HUMAN ORGANISM AND THE WORLD OF LIFE by Clarence W. Young, Assistant Professor of Psychology, Colgate University, G. Ledyard Stebbins, Junior Geneticist, Experiment Station, University of California, and Clarence John Hylander, Assistant Professor of Botany, Colgate University. 1938. 655 pages. 128 illustrations and several full page plates. Harper & Brothers. Price \$3.00.

In the subtitle, *A Survey in Biological Science*, the authors indicate exactly what the book is. The object in writing the book was to give the freshman student an insight into life processes, animal and plant. The method of presentation, however, is unique. In the experience of the authors, they found that the student's chief interests in the life processes are as they go on within himself and in his companions. Since a student can give only a brief period in the study of biological processes, it seems that he should be given as far as possible an understanding of the processes going on within his own kind. The picture of human life cannot, however, be complete without including all organic beings both animal and plants. The authors have therefore in handling the subject matter shifted back and forth between human beings and all other living things so as to give the student a satisfying knowledge of the world of life. Realizing the difficulty which general students have with technical terms, each chapter is followed by a glossary giving the new terms met with in the preceding chapter. The text presents three main divisions, Maintenance and Survival—Reproduction, Inheritance and Descent—Behavior and Mental Activity. Books of this type are helpful to pharmacy students in their collateral reading and if the time comes when a pre-college year is required for entrance, to the colleges of pharmacy, they will have a greater usefulness in orienting the student for a finer approach to the study of the biological sciences.

R. A. L.

INSTITUTIONS HOLDING MEMBERSHIP IN THE ASSOCIATION

NEW JERSEY

Rutgers University, The State University of New Jersey, College of Pharmacy, Newark; Ernest L. Bock, Dean (1935).

NEW YORK

Columbia University, College of Physicians and Surgeons, New York; Charles W. Ballou, Jr., Dean (1935).

Syracuse University, College of Medicine, New York; James M. Ballou, Jr., Dean (1935).

Long Island University, Southern Campus, Greenvale, New York; Hugh A. Ballou, Dean (1935).

University of Buffalo, School of Pharmacy, Buffalo; A. E. Ballou, Dean (1935).

NEW YORK (CONT'D)

University of North Carolina, School of Pharmacy, Chapel Hill; J. Oliver Ballou, Dean (1935).

NEW HAMPSHIRE

North Dakota Agricultural College, School of Pharmacy, Fargo; William F. Ballou, Dean (1935).

OHIO

Ohio Northern University, College of Pharmacy, Ada; Ralph H. Ballou, Dean (1935).

Ohio State University, College of Pharmacy, Columbus; E. V. Galloway, Dean (1935).

Western Reserve University, School of Pharmacy, Cleveland; Edward Ballou, Dean (1935).

OKLAHOMA

University of Oklahoma, School of Pharmacy, Norman; David E. Ballou, Dean (1935).

OREGON

Oregon State College, School of Pharmacy, Corvallis; Adolph Ziegler, Dean (1935).

North Pacific College of Oregon, School of Pharmacy, Portland; Arthur G. Ballou, Dean (1935).

PENNSYLVANIA

Drexel University, School of Pharmacy, Philadelphia; Hugh G. Ballou, Dean (1935).

Philadelphia College of Pharmacy and Science, Philadelphia; Lee Galloway, Dean (1935).

University of Pittsburgh, School of Pharmacy, Pittsburgh; E. West Galloway, Dean (1935).

University of Pittsburgh, Philadelphia School of Pharmacy, Philadelphia; Robert O'Connell, Dean (1935).

TEXAS

University of the Pacific, College of Pharmacy, Stockton; William V. Galloway, Dean (1935).

UTAH

University of Puerto Rico, College of Pharmacy, Rio Piedras; Louis E. Galloway, Dean (1935).

VIRGINIA

University of Maryland, College of Pharmacy and Dental Medicine, Baltimore; W. West Galloway, Dean (1935).

WASHINGTON

University of South Carolina, School of Pharmacy, Columbia; Henry G. Galloway, Dean (1935).

WASHINGTON (CONT'D)

North Dakota State College, School of Pharmacy, Bismarck; Earl E. Galloway, Dean (1935).

TEXAS

University of Tennessee, School of Pharmacy, Memphis; Robert A. Galloway, Dean (1935).

TEXAS

University of Texas, College of Pharmacy, Austin; William E. Galloway, Dean (1935).

TEXAS

Medical College of Virginia, School of Pharmacy, Richmond; Walter E. Galloway, Dean (1935).

WASHINGTON

University of Washington, College of Pharmacy, Seattle; David J. Galloway, Dean (1935).

State College of Washington, School of Pharmacy, Pullman; E. E. Galloway, Dean (1935).

WEST VIRGINIA

West Virginia University, College of Pharmacy, Morgantown; J. Edgar Galloway, Director (1935).

WISCONSIN

University of Wisconsin, School of Pharmacy, Madison; Arthur E. Galloway, Dean (1935).

Pharmacology

Independent, this subject is usually
the pharmacy faculty and is
with Fund's department.

Subjects of anatomy, physiology,
physiology, etc., are listed
as a pre-requisite for the

entirely reser. List of subjects
and. List of subjects of the
are included.

of Physiology, etc.,
Richard Bliss, M.D., Prof. of
Howard College, etc.

Pharmacology

ending is given. It is
It recognizes the
There are chapters on
etc.

Justin L. Pomeroy, M.D.,
Pharmacy

Botany

College botany for students of
Mass. College of Pharmacy,
1915.

Botany

both the morphology and
well illustrated.
Mass. College of Pharmacy

NY, Philadelphia